KENT AND MEDWAY AIR QUALITY MONITORING NETWORK

2024 NETWORK ANNUAL REPORT

Report for: Kent and Medway Air Quality Monitoring Partnership (KMAQP)

Ricardo ref. ED20071 Issue: 1

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Customer:
Tunbridge Wells Borough Council – Kent and Medway Air Quality Partnership

Customer reference:
KMAQP AQ Network Annual Report 2024

Ricardo reference:
ED20071

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Date: 25/10/2025

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GLOSSARY

AQAP	Air Quality Action Plan
AQMA	Air Quality Management Area
AQS	Air Quality Strategy
ASR	Annual Status Report
AURN	Automatic Urban and Rural Network
CO_2	Carbon Dioxide
DAQI	Daily Air Quality Index
Limit Value	Legally binding limit
LGV	Light Goods Vehicles (e.g. vans, small trucks)
Target Value	Limits to be attained where possible by taking all necessary measures not entailing disproportionate costs.
LAQM	Local Air Quality Management
Indicative measurement	Measurements which meet data quality objectives that are representative of indicative classification
NAEI	National Atmospheric Emissions Inventory
NO_2	Nitrogen Dioxide
NOx	Nitrogen Oxides (NOx = NO + NO_2)
O_3	Ozone
PM_{10}	particles that pass through a size-selective inlet with 50% efficiency at an aerodynamic diameter of 10µm
$PM_{2.5}$	particles that pass through a size-selective inlet with 50% efficiency at an aerodynamic diameter of 2.5µm
QAQC	Quality Assurance and Quality Control
SO_2	Sulphur Dioxide

EXECUTIVE SUMMARY

This report provides and overview of the air quality monitoring that was undertaken for the Kent and Medway Air Quality Monitoring Network (KMAQMN) in 2024.

Seventeen automatic air quality monitoring sites were operational during 2024 measuring Nitrogen Dioxide (NO_2), Ozone (O_3), Particulate Matter as PM_{10} and $PM_{2.5}$ and Sulphur Dioxide (SO_2). Three of the seventeen sites also form part of the Automatic Urban and Rural Network (AURN).

Ambient NO_2 is also monitored across the KMAQMN via diffusion tubes - a passive monitoring technique that provides "indicative" measurements of NO_2 for comparison against air quality objectives.

Exceedances of the Air Quality Strategy (AQS) Objectives

One site exceeded the annual mean limit value for NO_2 in 2024. The annual mean NO_2 concentration measured at Maidstone Upper Stone Street was 44.8 μgm^{-3}, which was greater than the 40 μgm^{-3} annual limit value. No sites in the KMAQMN exceeded the hourly mean NO_2 objective of 200 μgm^{-3} more than 18 times.

The annual mean limit values of 40 μgm^{-3} for PM_{10} concentrations and 20 μgm^{-3} for $PM_{2.5}$ concentrations were not exceeded at any site in the KMAQMN. One site exceeded the 50 μgm^{-3} 24-hour mean objective for PM_{10} more than the allowable exceedances of 35 times in a year. There were 85 exceedances on the 24-hour mean objective at Swale St Pauls Street in 2024.

Both sites measuring O_3 in the KMAQMN exceeded the 8-hour running meaning objective of 100 μgm^{-3} more than the allowable limit of 10 times per year. The Canterbury and Rochester Stoke sites exceeded this objective on 17 days each in 2024.

All objectives for SO_2 were met at the Rochester Stoke site in 2024.

Pollution episodes

The Daily Air Quality Index (DAQI) was used to assess the number of days of "Moderate", "High" and "Very High" pollution.

In 2024, Moderate NO_2 was recorded at one site, Maidstone Upper Stone Street. This was likely a result of a localised source and not a widespread pollution episode. No episodes of Moderate, High, or Very High SO_2 were recorded at any sites in the KMAQMN in 2024. Canterbury and Rochester Stoke sites each recorded 17 Moderate O_3 days in 2024. There were no instances of High or Very High days for O_3 recorded at either site.

Of the 13 sites monitoring PM_{10}, five recorded one or more Moderate days in 2024. One site, Swale St Pauls Street, also recorded High days for PM_{10}. Swale St Pauls Street recorded the greatest number of Moderate and High days, 63 and 16 respectively. A Very High day was also recorded at Swale St Pauls Street. Canterbury, Chatham Roadside, Maidstone Upper Stone Street, Rochester Stoke, Swale Newington and Swale St Pauls Street also recorded one or more Moderate days for $PM_{2.5}$ concentrations in 2024. Swale St Pauls Street also recorded one High day and one Very High day for $PM_{2.5}$ concentrations.

A High pollution episode for PM_{10}, $PM_{2.5}$ occurred between August and September affecting a majority of the UK. This episode is a result of polluted air masses from the continent carrying high concentrations of particulate matter pollution from a variety of sources. In May 2024, two O_3 pollution episodes also occurred which are evident in data measured at Canterbury and Rochester Stoke automatic monitoring sites. These widespread O_3 pollution episodes occurred between 9th May to 12th May and 19th May to 20th May and are the result of increased temperatures and air masses from the continent causing increased ozone production and low wind speeds leading to poor dispersion of O_3.

Long term trends

Annual mean concentrations from 1998 to 2024 from the KMAQMN sites were compared to the UK averages.

During the Covid-19 pandemic, NO_2 concentrations at many sites showed a significant decrease due to traffic volumes reducing during this period. In recent years, some sites have shown a small increase in NO_2 concentrations, however all sites have remained below pre-pandemic concentrations in 2024.

PM_{10} and $PM_{2.5}$ across the KMAQMN have followed the trend of the UK annual averages, showing a general decreasing trend. In 2024, most traffic sites in the KMAQMN showed PM_{10} and $PM_{2.5}$ concentrations greater than the UK annual average.

Annual O_3 concentrations at Rochester Stoke remained similar to the annual mean concentration in 2023. Ozone concentrations at Canterbury showed a small increase compared to the 2023 annual mean however this follows the generally increasing trend in ozone concentrations seen in the UK annual average ozone concentrations. Annual O_3 concentrations are highly variable year on year, as O_3 production depends greatly on the meteorological conditions. At Rochester Stoke, annual SO_2 concentrations show a small increase in concentrations in 2024 compared to those measured in 2023. However, concentrations measured at Rochester Stoke continue to closely follow the overall decreasing trend of the UK annual average. This is likely due to the reduction in sulphur fuels and decrease in power plants using coal.

1. INTRODUCTION

This report provides details of the air quality monitoring data from the Kent and Medway Air Quality Monitoring Network (KMAQMN) for the calendar year 2024. The network was first formed in 1997 to undertake and report measurements of key air quality pollutants in the Kent and Medway region.

The report presents results and data for nitrogen dioxide (NO_2), particulate Matter (PM_{10} and $PM_{2.5}$), ozone (O_3) and sulphur dioxide (SO_2) from the seventeen continuous monitoring stations that were operational in the network in 2024. NO_2 data from the non-continuous NO_2 diffusion tube monitoring network are also presented here.

Summary statistics of all measured air pollutants and comparisons against UK Air Quality Strategy Objectives are provided. The report also includes details of exceedances and periods of significant air pollution episodes in 2024. Long term trends in the pollutant concentrations from the KMAQMN are also presented and compared to data from the Automatic Urban and Rural Network (AURN).

2. KENT AND MEDWAY AIR QUALITY NETWORK

2.1 KENTAIR WEBSITE

The KentAir website (https://kentair.org.uk/) is a publicly accessible website that contains up to date information, data and resources relating to air quality in the region.

Pages on the site provide important information such as:

- Details on the key ambient pollutants, their sources and impacts on health.
- How the pollutants are monitored.
- The Daily Air Quality Index (DAQI) bands and how these can be used.
- Current legislation, policy, standards and objectives.
- Local authority low-cost sensor monitoring projects.

The front page includes an interactive map which displays the current DAQI for each monitoring site, and a postcode selector to allow users to zoom into specific locations. Information on the monitoring sites, including photos, reports and statistics is easily accessible via the map. Users can also sign up to air pollution forecasts via the website.

A tab on the front page links to the Care for Air website (https://care-for-air.kentair.org.uk), an educational resource which provides information about what causes pollution and how individuals can help to reduce it. Fact sheets and teaching materials can be downloaded, and an emissions calculator can be used to estimate an individual's emissions based on their travel choices.

2.2 AUTOMATIC MONITORING SITES

Seventeen automatic air quality monitoring sites were operational during 2024. Of these seventeen, three are part of the Automatic Urban and Rural Network (AURN).

A map of the locations of the monitoring sites is provided in Figure 1. Details of the pollutants measured at each site is shown in Table 2-1.

Figure 1: Automatic monitoring locations in the KMAQMN (blue circles) and UK national network (red circles).

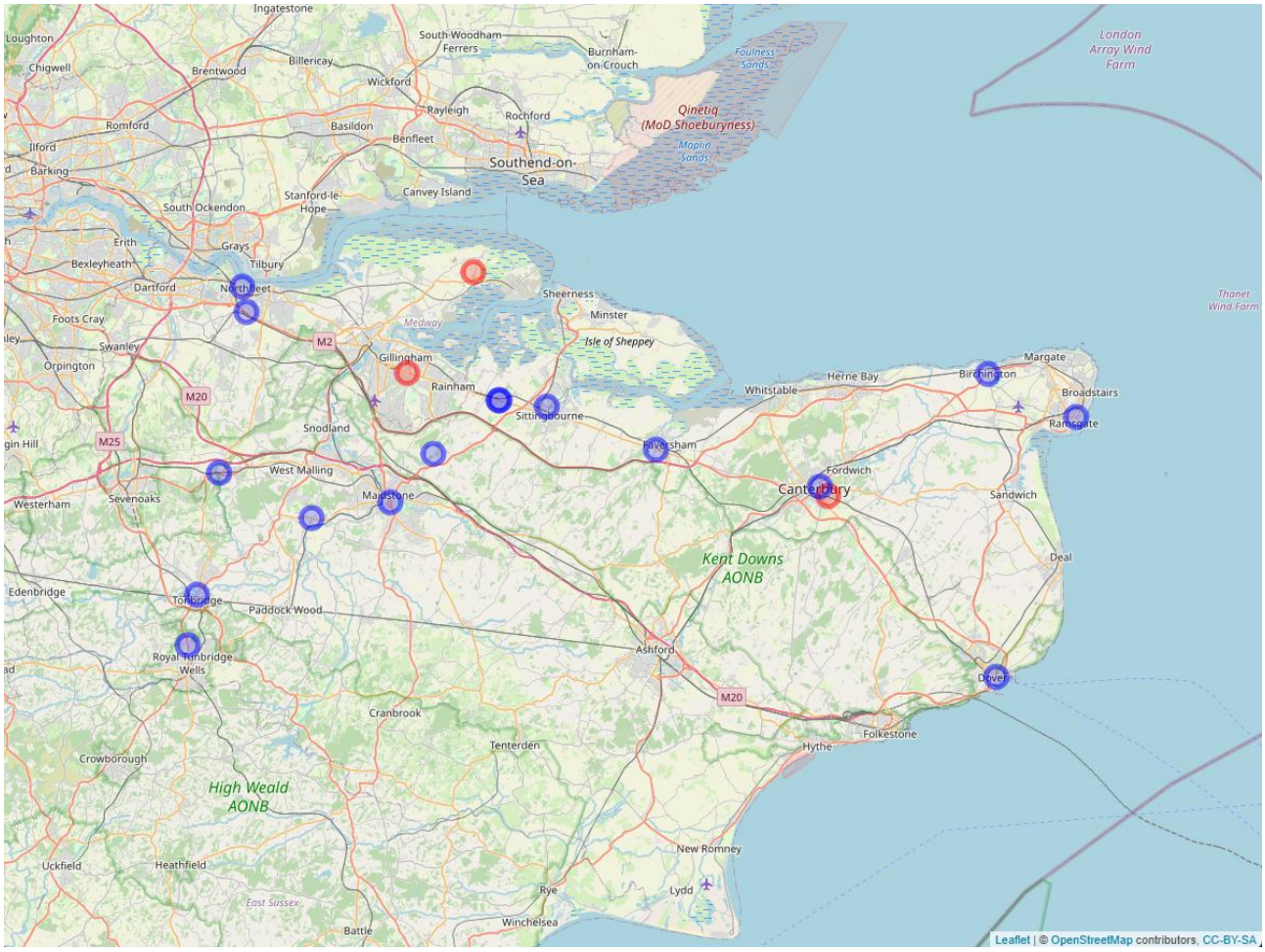


Table 2-1: Automatic monitoring stations within the KMAQMN during 2024

Site Name	Site Type	Network	Start	Pollutants Monitored
Canterbury	Urban background	AURN	02/01/2001	NO_2, O_3, PM_{10}, $PM_{2.5}$
Canterbury Military Road	Roadside	KMAQMN	01/10/2006	NO_2
Chatham Roadside	Urban traffic	AURN	01/07/2010	NO_2, PM_{10}, $PM_{2.5}$
Dover Centre Roadside	Roadside	KMAQMN	21/12/2000	PM_{10}
Gravesham A2 Roadside	Roadside	KMAQMN	31/12/1998	NO_2, PM_{10}

Site Name	Site Type	Network	Start	Pollutants Monitored
Gravesham Industrial Background	Urban background	KMAQMN	01/01/1999	NO_2, PM_{10}
Maidstone Rural	Rural	KMAQMN	01/01/1999	NO_2, PM_{10}
Maidstone Upper Stone Street	Roadside	KMAQMN	09/05/2018	NO_2, PM_{10}, $PM_{2.5}$
Rochester Stoke	Rural	AURN	26/01/1996	NO_2, O_3, PM_{10}, $PM_{2.5}$, SO_2
Swale Newington	Roadside	KMAQMN	07/04/2021	NO_2, PM_{10}, $PM_{2.5}$
Swale Ospringe Roadside 2	Roadside	KMAQMN	15/03/2006	NO_2
Swale St Pauls Street	Roadside	KMAQMN	21/01/2013	NO_2, PM_{10}, $PM_{2.5}$
Thanet Birchington Roadside	Roadside	KMAQMN	19/03/2007	NO_2, PM_{10}
Thanet Ramsgate Roadside	Roadside	KMAQMN	01/01/2003	NO_2, PM_{10}
Tonbridge High Street	Roadside	KMAQMN	14/07/2022	NO_2
Tonbridge and Malling, Borough Green Roadside	Roadside	KMAQMN	10/07/2005	NO_2, PM_{10}
Tunbridge Wells A26 Roadside	Roadside	KMAQMN	20/06/2005	NO_2, PM_{10}, $PM_{2.5}$

2.3 NETWORK CHANGES IN 2024

In March 2024, Gravesham Industrial Background automatic monitoring station was decommissioned. The Canterbury AURN automatic monitoring station was decommissioned in November 2024 meaning only the two Medway sites (Chatham Roadside and Rochester Stoke) are affiliated to the AURN. Significantly, there is no longer any ozone monitoring to the east of the county.

2.4 POLLUTANTS MONITORED

The KMAQMN monitors nitrogen dioxide (NO_2), particulate Matter (PM_{10} and $PM_{2.5}$), ozone (O_3) and sulphur dioxide (SO_2) at the automatic monitoring sites. Details of the sources and health impacts of each pollutant and methods for monitoring are provided below:

Nitrogen Dioxide: NO_2 is formed from combustion processes and has a primary (emitted directly) and secondary (formed from chemical reactions in the atmosphere) component. In urban areas road transport is the main source of ambient NO_2. NO_2 can have an adverse effect on human health through inflammation of the airways and can cause issues with the respiratory system, in particular to those with underlying conditions.

Particulate Matter: Particulate matter in the atmosphere has many sources in the UK including combustion and road vehicle emissions. Similarly to NO_2, PM can consist of both primary and secondary sources. Secondary PM can be formed in the atmosphere from precursors such as nitrogen oxides, sulphur dioxide and ammonia. PM can also be transported long distances, therefore increases in PM can often occur in the UK when pollution is transported from the continent. PM_{10} and $PM_{2.5}$ are monitored in the KMAQMN, these are particles that pass through a size-selective inlet with 50% efficiency at an aerodynamic diameter of 10 and 2.5 µm, respectively. The smaller particles are of particular concern to human health as they can penetrate deep into the lungs. PM can also cause inflammation of the airways and exacerbate symptoms in those with heart and lung diseases. Small particles may also carry surface absorbed carcinogenic compounds into the lungs.

Ozone: Ozone is a secondary pollutant which is formed in the atmosphere via reactions between its precursors - nitrogen oxides (NOx) and volatile organic compounds (VOCs) - in the presence of sunlight. Ozone and its precursors can travel long distances, therefore the ozone measured at one location, may have originated many miles away. Ozone reacts rapidly with nitrogen oxide (NO), therefore ozone levels are typically lower in urban areas, where NO emissions are higher as a result of emissions from vehicle exhausts. Ozone can cause irritation to the eyes and nose and inflammation to the airways at high concentrations.

Sulphur Dioxide: The main source of SO_2 is from the combustion of fuels which contain sulphur. Exposure to SO_2 can cause irritation and constriction of the airways and exacerbate symptoms in those with underlying respiratory issues. In the atmosphere, SO_2 and water vapour can mix and form acid rain, which can have a destructive effect on the ecosystem.

2.5 MONITORING METHODS

The LAQM Technical Guidance LAQM.TG(22)[1] provides information on the monitoring techniques that can be used to monitor ambient pollutants as part of a local air quality monitoring programme. The KMAQMN includes the following montioring methods:

- Continuous NO_2 is measured by the chemiluminescence technique, which is the standard reference method of measuring NO, NO_2 and NOx.
- PM_{10} is measured by either Tapered Element Oscillating Microbalance (TEOM), Beta Attenuation Monitoring (BAM) or a fine dust monitoring system (FIDAS). $PM_{2.5}$ is measured by BAM or FIDAS. Correction factors to the data are required for the TEOM and BAMs before comparisons to air quality standards, as described in the LAQM Technical Guidance LAQM.TG(22). PM_{10} data from the TEOMs are corrected using the volatile correction model (VCM)[2] developed by King's College. PM_{10} data from the BAM is corrected using a multiplication value of 0.833. No corrections are necessary for $PM_{2.5}$ data.
- Ozone is measured using the standard ultraviolet (UV) absorption technique.
- SO_2 is measured by the UV fluorescence technique.

Ambient NO_2 is also monitored in the KMAQMN by diffusion tubes. Diffusion tubes are a passive monitoring technique that provides "indicative" measurements of NO_2 for comparison against air quality objectives. The tubes are exposed over 4-5 weeks, approximately coinciding with monthly periods, and an annual mean calculated from the data. NO_2 diffusion tubes are known to have biases, when compared to chemiluminescence NO_2 measurements, therefore the annual means from the tubes are required to be bias corrected, using local or national correction factors. If there is less than 9 months of data in a calendar year, the annual means are also required to be annualised, using local data from nearby automatic monitoring stations.

3. AUTOMATIC MONITORING RESULTS

3.1 NETWORK DATA CAPTURE

Table 3-1 shows the data capture rates for each site and pollutant measured during 2024. The target annual data capture rate is 90%, however, those analysers with a data capture greater than 75% can still provide representative annual means. Analysers with a data capture rate below 75% are not representative of the full year, outlined in TG(22)[3].

[1] https://laqm.defra.gov.uk/wp-content/uploads/2022/08/LAQM-TG22-August-22-v1.0.pdf
[2] http://www.volatile-correction-model.info/
[3] https://laqm.defra.gov.uk/wp-content/uploads/2022/08/LAQM-TG22-August-22-v1.0.pdf

Table 3-1: Data capture rates, 2024. Yellow values represent data capture between 75% and 90%. Red values represent data capture rates < 75 %. Data capture rates shown in brackets represent period data capture prior to decommissioning of site.

Site Name	NO_2	PM_{10}	$PM_{2.5}$	O_3	SO_2
Canterbury	81.2[(a)] (94.4)	83.5[(a)] (98.9)	83.5[(a)] (98.9)	82.4[(a)] (95.7)	
Canterbury Military Road	97.6				
Chatham Roadside	97.7	95.2	91.5		
Dover Centre Roadside		97.6			
Gravesham A2 Roadside	98.9	98.6			
Gravesham Industrial Background	18.1 (97.7)[(b)]				
Maidstone Rural	95.9	88.1[(c)]			
Maidstone Upper Stone Street	91.7	98.2	93.7		
Rochester Stoke	98.8	98.2	98.2	98.9	96.4
Swale Newington 4	99.4	96.6	95.2		
Swale Ospringe Roadside 2	99.6				
Swale St Pauls Street	91.6	97.6	91.7		
Thanet Birchington Roadside	94.3	94.5			
Thanet Ramsgate Roadside	94.0	95.3			
Tonbridge and Malling, Borough Green Roadside	93.7	96.9			
Tonbridge High Street	99.7				
Tunbridge Wells A26 Roadside	99.5	98.4	84.5[(d)]		
Number of sites	**16**	**13**	**7**	**2**	**1**
Number of sites >= 90%	**14**	**11**	**5**	**1**	**0**

(a) Site decommissioned November 2024.
(b) Site decommissioned March 2024.
(c) FDMS analyser faults.
(d) $PM_{2.5}$ BAM tape errors.

3.2 COMPARISON WITH AQS OBJECTIVES

Table 3-2 provides an overview of the Air Quality Strategy Objectives applicable to local authorities in the UK (objectives for some pollutants are different in Scotland). The UK air quality objectives were originally transposed into UK law from the European Commission Directive on Ambient Air Quality and Cleaner Air for Europe[4]. Since leaving the EU, the UK is no longer tied to the EU limits, however, current objectives in the UK are based on those stated in the Directive.

[4] European Commission, "DIRECTIVE 2008/50/EC OF The European Parliament And Of The Council of 21 May 2008 On Ambient Air Quality And Cleaner Air For Europe," 2008. [Online]. Available : https://www.legislation.gov.uk/eudr/2008/50/contents.

Table 3-2: Air Quality Strategy Objectives (applicable to local authorities in England).

Pollutant	Limit Value	Averaging Period
Nitrogen Dioxide (NO_2)	200 μgm^{-3} not to be exceeded more than 18 times a year	1-hour mean
	40 μgm^{-3}	Annual mean
Particulate Matter (PM_{10})	50 μgm^{-3} not to be exceeded more than 35 times a year	24-hour mean
	40 μgm^{-3}	Annual mean
Particulate Matter ($PM_{2.5}$)	20 μgm^{-3}	Annual mean
Sulphur dioxide (SO_2)	266 μgm^{-3} not to be exceeded more than 35 times a year	15-minute mean
	350 μgm^{-3} not to be exceeded more than 24 times a year	1-hour mean
	125 μgm^{-3} not to be exceeded more than 3 times a year	24-hour mean
Ozone (O_3)	100 μgm^{-3} not to be exceeded more than 10 times a year	Daily maximum running 8-hour mean

Table 3-3 shows the annual mean concentrations for all pollutants measured in the network, at each site. One site, Maidstone Upper Stone Street, exceeded the annual mean limit value of 40 μgm^{-3} in 2024, with a value of 44.8 μgm^{-3}. No sites exceeded the PM_{10} annual mean limit value of 40 μgm^{-3}, or the $PM_{2.5}$ limit value of 20 μgm^{-3}.

Table 3-3: Annual mean concentrations, 2024. Values in red indicate those which exceed the relevant annual mean objective or target (applicable to NO_2, PM_{10} and $PM_{2.5}$ only)

Site Name	NO_2	PM_{10}	$PM_{2.5}$	O_3	SO_2
Canterbury	8.2	12.1	7.8	57.5	
Canterbury Military Road	16.9				
Chatham Roadside	15.0	14.5	8.3		
Dover Centre Roadside		20.3			
Gravesham A2 Roadside	18.8	10.3			
Gravesham Industrial Background	*				
Maidstone Rural	6.8	11.8			
Maidstone Upper Stone Street	44.8	18.8	10.3		
Rochester Stoke	9.0	12.0	7.7	57.7	0.8
Swale Newington 4	17.6	17.3	9.5		
Swale Ospringe Roadside 2	20.3				
Swale St Pauls Street	26.4	36.6	10.8		

Site Name	NO_2	PM_{10}	$PM_{2.5}$	O_3	SO_2
Thanet Birchington Roadside	21.7	18.8			
Thanet Ramsgate Roadside	15.0	25.5			
Tonbridge and Malling, Borough Green Roadside	15.1	23.8			
Tonbridge High Street	23.6				
Tunbridge Wells A26 Roadside	20.3	17.6	7.8		
KMAQMN Average	**18.6**	**18.4**	**8.9**	**57.6**	**0.8**

* Annual mean not calculated due to data capture <25%.

A comparison of 2024 data with short-term Air Quality Strategy Objectives is provided in Table 3-4. In 2024, the 24-hour mean PM_{10} objective was exceeded on 85 occasions at Swale St Pauls Street. This is greater than the 35 permitted exceedances of this AQS objective. Swale Borough Council have performed additional monitoring around Swale St Pauls Street, analysed findings of the monitoring programme and implemented actions in the area to mitigate elevated PM_{10} concentrations where possible.

Furthermore, there were 17 days where the 8-hour running meaning objective for O_3 of 100 μgm^{-3} was exceeded at both Canterbury and Rochester Stoke. This is greater than the 10 allowable exceedances of the O_3 8-hour running mean objective.

Table 3-4: Number of exceedances of short-term objectives in 2024. Values in red indicate those which exceed the relevant short-term mean objective more than the permitted number of times.

Site Name	NO_2	PM_{10}	O_3	SO_2		
	1-hour	24-hour	Daily max running 8-hour	24-hour	1-hour	15-minute
Canterbury	0 (51.3)[a]	1 (22.2)[b]	17			
Canterbury Military Road	0					
Chatham Roadside	0	0				
Dover Centre Roadside		2				
Gravesham A2 Roadside	0	0				
Gravesham Industrial Background	0					
Maidstone Rural	0	0				
Maidstone Upper Stone Street	1	0				
Rochester Stoke	0	0	17	0	0	0
Swale Newington 4	0	2				
Swale Ospringe Roadside 2	0					
Swale St Pauls Street	0	85				
Thanet Birchington Roadside	0	0				
Thanet Ramsgate Roadside	0	4				

Site Name	NO_2	PM_{10}	O_3	SO_2		
Tonbridge and Malling, Borough Green Roadside	0	6				
Tonbridge High Street	0					
Tunbridge Wells A26 Roadside	0	0				

[a]Value in bracket represents the 99.8th percentile where the valid data capture for year is less than 85%.
[b]Value in bracket represents the 90.4th percentile where the valid data capture for year is less than 85%.

3.3 DAILY AIR QUALITY INDEX (DAQI)

The Daily Air Quality Index (DAQI)[5] is used to provide information on air pollution levels and recommendations on the actions that can be taken depending on the index value. The index ranges from 1 to 10 and is sub categorised into 4 bands (Low, Moderate, High, Very High). The bands are based on recommendations from the Committee on the Medical Effects of Air Pollutants (COMEAP). An overview of the bands for O_3, NO_2, SO_2 $PM_{2.5}$ and PM_{10} is provided in Table 3-5.

Table 3-5: Daily Air Quality Index (DAQI) bands for each pollutant.

Index	Band	Ozone 8-Hourly Mean (μgm^{-3})	Nitrogen Dioxide Hourly Mean (μgm^{-3})	Sulphur Dioxide 15 Minute Mean (μgm^{-3})	$PM_{2.5}$ Daily Mean (μgm^{-3})	PM_{10} Daily Mean (μgm^{-3})
1	Low	0-33	0-67	0-88	0-11	0-16
2	Low	34-66	68-134	89-177	12-23	17-33
3	Low	67-100	135-200	178-266	24-35	34-50
4	Moderate	101-120	201-267	267-354	36-41	51-58
5	Moderate	121-140	268-334	355-443	42-47	59-66
6	Moderate	141-160	335-400	444-532	48-53	67-75
7	High	161-187	401-467	533-710	54-58	76-83
8	High	188-213	468-534	711-887	59-64	84-91
9	High	214-240	535-600	888-1064	65-70	92-100
10	Very High	241 or more	601 or more	1065 or more	71 or more	101 or more

The overall DAQI for a specific site is calculated as the highest index from each the five different pollutants and actions and health advice provided for each of the bandings, as shown in Table 3-6.

[5] https://www.kentair.org.uk/about-air-quality/daily-air-quality-index

Table 3-6: DAQI bandings and associated actions and health advice. Taken from https://uk-air.defra.gov.uk/air-pollution/daqi

Air Pollution Banding	Index Value	Accompanying health messages for at-risk individuals*	Accompanying health messages for the 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. It is possible that very sensitive individuals may experience health effects even on Low air pollution days. Anyone experiencing symptoms should follow the guidance provided below.

Table 3-7 to Table 3-11 show the number of days when a Moderate or above DAQI was recorded at each monitoring site in 2023 for the different pollutants. The results for each pollutant are considered below.

NO_2: There were no instances of Moderate, High or Very High NO_2 concentrations recorded at any site in the network in 2023.

PM_{10}: 5 of the 15 monitoring stations recorded at least one day with Moderate or above DAQI for PM_{10}. Swale St Pauls Street observed the highest number of Moderate or above days for PM_{10}, recording 28 days in the Moderate band, 5 days in the High band and 1 days in the Very High band.

$PM_{2.5}$: 5 of the 7 sites monitoring $PM_{2.5}$ observed $PM_{2.5}$ in the Moderate band, no sites observed $PM_{2.5}$ in the High band in 2023.

O_3: Canterbury and Rochester Stoke observed 20 days and 16 days, respectively of Moderate O_3 concentrations. Canterbury also recorded 1 day in the High band.

SO_2: There were no days when the SO_2 concentrations measured at the Rochester Stoke site reached the Moderate or above band.

Further information on the days when Moderate or high pollution was observed is provided in Section 3.4.

Table 3-7: Numbers of days with "Moderate" or above NO_2 concentrations in 2024.

Site Name	Moderate	High	Very High
Canterbury	0	0	0
Canterbury Military Road	0	0	0
Chatham Roadside	0	0	0
Gravesham A2 Roadside	0	0	0
Gravesham Industrial Background [(a)]	0	0	0
Maidstone Rural	0	0	0
Maidstone Upper Stone Street	1	0	0
Rochester Stoke	0	0	0
Swale Newington 4	0	0	0
Swale Ospringe Roadside 2	0	0	0
Swale St Pauls Street	0	0	0
Thanet Birchington Roadside	0	0	0
Thanet Ramsgate Roadside	0	0	0
Tonbridge and Malling, Borough Green Roadside	0	0	0
Tonbridge High Street	0	0	0
Tunbridge Wells A26 Roadside	0	0	0

[(a)]Annual data capture < 75 %, therefore some pollution episodes may not have been recorded.

Table 3-8: Numbers of days with "Moderate" or above PM_{10} concentrations in 2024.

Site Name	Moderate	High	Very High
Canterbury	0	0	0
Chatham Roadside	0	0	0
Dover Centre Roadside	2	0	0
Gravesham A2 Roadside	0	0	0
Maidstone Rural	0	0	0
Maidstone Upper Stone Street	0	0	0
Rochester Stoke	0	0	0
Swale Newington 4	1	0	0
Swale St Pauls Street	63	16	1
Thanet Birchington Roadside	0	0	0
Thanet Ramsgate Roadside	3	0	0
Tonbridge and Malling, Borough Green Roadside	5	0	0

Site Name	Moderate	High	Very High
Tunbridge Wells A26 Roadside	0	0	0

Table 3-9: Numbers of days with "Moderate" or above $PM_{2.5}$ concentrations in 2024.

Site Name	Moderate	High	Very High
Canterbury	1	0	0
Chatham Roadside	1	0	0
Maidstone Upper Stone Street	1	0	0
Rochester Stoke	1	0	0
Swale Newington 4	2	0	0
Swale St Pauls Street	5	1	1
Tunbridge Wells A26 Roadside	0	0	0

Table 3-10: Numbers of days with "Moderate" or above O_3 concentrations in 2024.

Site Name	Moderate	High	Very High
Canterbury	17	0	0
Rochester Stoke	17	0	0

Table 3-11: Numbers of days with "Moderate" or above SO_2 concentrations in 2024.

Site Name	Moderate	High	Very High
Rochester Stoke	0	0	0

3.4 SIGNIFICANT AIR POLLUTION EPISODES

Table 3-12 shows the days when at least one of the pollutants (NO_2, PM_{10}, $PM_{2.5}$, O_3 and SO_2) observed Moderate or higher pollution. Section 3.2 illustrates the limit values.

Table 3-12: Dates when one or more pollutants were in the moderate or higher band.

Date	NO_2 DAQI	PM_{10} DAQI	$PM_{2.5}$ DAQI	O_3 DAQI	SO_2 DAQI
16/01/2024	3	8	3	2	1
20/01/2024	2	5	1	3	1
31/01/2024	2	7	2	3	1
01/02/2024	2	6	2	3	1
12/02/2024	5	5	1	3	1
27/02/2024	2	3	5	3	1
28/02/2024	2	5	7	3	1
04/03/2024	2	5	6	3	1
06/03/2024	2	4	2	2	1
07/03/2024	2	7	3	2	1
08/03/2024	2	8	3	2	1
09/03/2024	2	4	2	2	1
11/03/2024	2	5	4	2	1
14/03/2024	2	4	1	3	1
19/03/2024	2	4	1	3	1
20/03/2024	2	10	2	3	1
21/03/2024	2	5	2	3	1
25/03/2024	2	8	2	3	1
26/03/2024	2	7	2	2	1
06/04/2024	1	3	1	4	1
07/04/2024	1	2	1	4	1
08/04/2024	2	9	2	3	1
10/04/2024	2	4	1	3	1
29/04/2024	2	3	1	4	1
30/04/2024	2	6	1	3	1
01/05/2024	2	6	2	3	1
02/05/2024	2	6	3	3	1
07/05/2024	2	3	2	4	1
08/05/2024	2	5	1	3	1
09/05/2024	2	8	2	4	1
10/05/2024	2	6	2	3	1
11/05/2024	1	4	3	3	1
12/05/2024	2	3	3	5	1
13/05/2024	1	4	2	3	1

15/05/2024	2	5	2	3	1
17/05/2024	2	4	1	3	1
19/05/2024	1	3	2	5	1
20/05/2024	2	3	2	4	1
24/05/2024	2	6	2	3	1
25/05/2024	2	4	2	3	1
26/05/2024	2	8	10	3	1
04/06/2024	2	4	1	2	1
20/06/2024	2	4	1	3	1
21/06/2024	3	4	1	4	1
24/06/2024	2	6	1	3	1
25/06/2024	2	4	2	4	1
26/06/2024	2	4	2	5	1
27/06/2024	3	3	2	4	1
15/07/2024	1	5	1	3	1
17/07/2024	1	4	1	3	1
18/07/2024	1	7	1	4	1
19/07/2024	2	7	2	4	1
24/07/2024	1	4	1	3	1
29/07/2024	2	4	2	5	1
30/07/2024	3	5	2	6	1
31/07/2024	1	4	1	4	1
01/08/2024	2	4	2	3	1
02/08/2024	1	4	2	4	1
12/08/2024	2	4	1	4	1
19/08/2024	1	4	2	3	1
28/08/2024	2	4	2	4	1
07/09/2024	2	4	2	3	1
13/09/2024	2	4	3	3	1
18/09/2024	1	5	2	3	1
19/09/2024	1	8	3	4	1
20/09/2024	2	6	3	3	1
21/09/2024	2	6	3	3	1
23/09/2024	2	2	1	4	1
25/09/2024	2	5	1	3	1
04/10/2024	2	7	2	3	1
11/10/2024	2	5	2	3	1
12/10/2024	2	4	1	2	1
15/10/2024	2	4	2	2	
18/10/2024	2	4	1	2	1

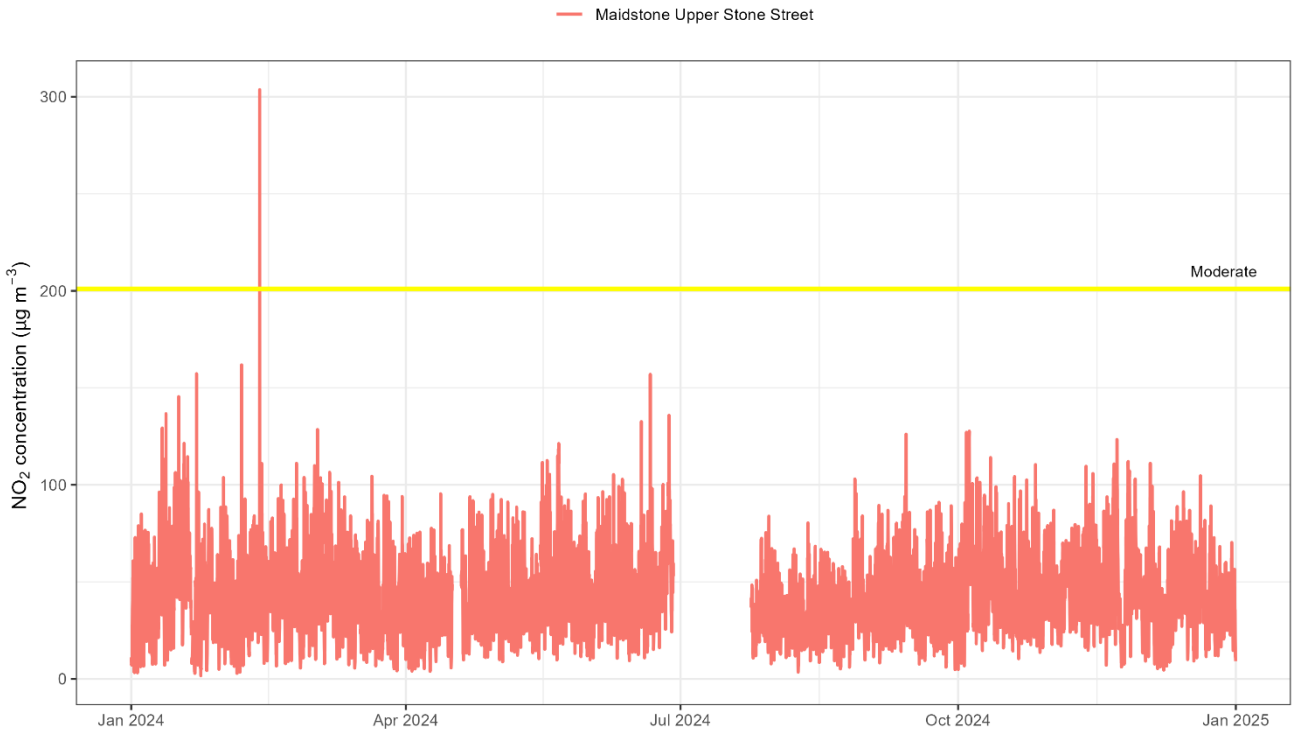
23/10/2024	2	4	2	2	1
24/10/2024	2	7	2	2	1
25/10/2024	2	5	2	2	1
31/10/2024	2	6	2	1	1
04/11/2024	2	5	2	2	1
05/11/2024	2	8	4	1	1
06/11/2024	2	4	3	1	1
07/11/2024	2	5	3	1	1
08/11/2024	2	6	3	1	1
09/11/2024	2	4	3	1	1
15/11/2024	2	4	2	2	1
24/11/2024	1	5	1	2	1
26/11/2024	2	5	2	2	1
03/12/2024	2	4	2	2	1
04/12/2024	2	7	2	2	1
06/12/2024	2	5	4	3	1
13/12/2024	2	5	3	1	1
16/12/2024	2	4	1	3	1

3.4.1 Nitrogen Dioxide Episodes

Figure 2 shows the hourly mean NO2 concentrations measured at Maidstone Upper Stone Street in 2024. The limit values that set the thresholds for episodes are described in Section 3.2.

NO_2 concentrations were shown to be moderate on one day in 2024. This is likely a result of the elevated NO_2 concentrations measured at Maidstone Upper Stone Street on 12th February. On this day, hourly mean NO_2 concentrations peaked at 303.7 μgm^{-3}. However, elevated data was not shown at other KMAQMN sites, therefore this peak in NO_2 concentrations is likely a result of a localised source.

Figure 2: Hourly mean NO_2 concentrations for sites that observed moderate or higher pollution during 2024.



3.4.2 Particulate Matter Episodes

During 2024 particulate matter episodes occurred at sites in the Kent region. The limit values that set the thresholds for episodes are described in Section 3.2. Figure 3 and Figure 4, show the daily mean PM_{10} and $PM_{2.5}$ concentrations for those sites that observed moderate or higher pollution during 2024.

Very High PM_{10} of 103 μgm^{-3} was recorded at Swale St Pauls Street on 20th March 2024. Very High $PM_{2.5}$ of 105.8 μgm^{-3} was also recorded at Swale St Pauls Street on 26th May 2024. All other sites recorded Low pollution bandings on these days. This therefore indicated a localised pollution event likely cause by a local source. Pollution banding for the southeast also remained low on these days, however a Moderate pollution episode was shown to occur between 29th July and 2nd August 2024. This pollution episode was likely due to air masses imported from the continent through long-range transport, which contained high concentrations of particulate matter from urban, industrial, and agricultural sources.

Figure 5 illustrates the origins of the particulate matter pollution episode in July and August as described above. This further demonstrates that wind sources during this period predominately originated in Europe and therefore transboundary movement of polluted air masses is the likely cause of this pollution episode.

Figure 3: Daily mean PM_{10} concentrations for sites that observed moderate or higher pollution during 2024 (Period highlighted in orange indicates a widespread particulate matter pollution episode).

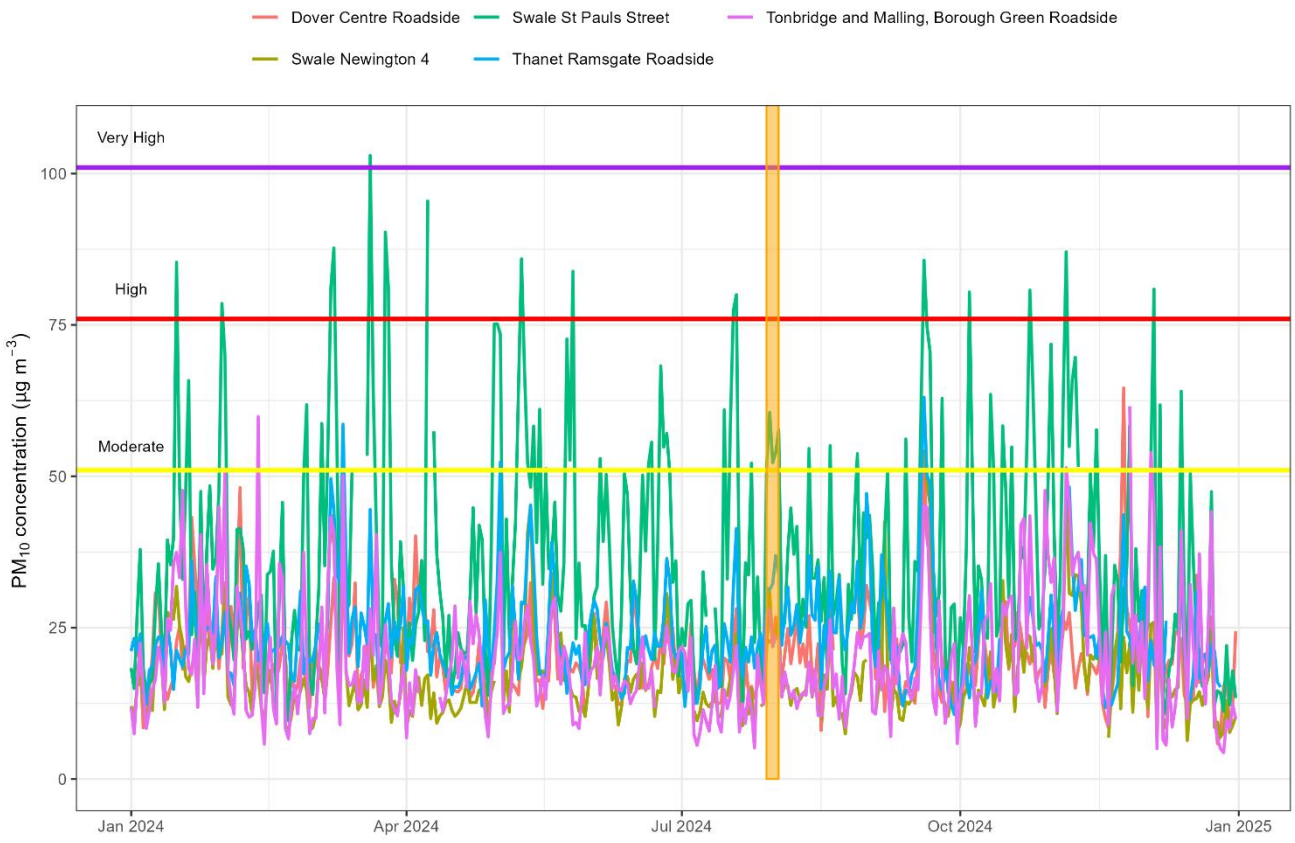


Figure 4: Daily mean $PM_{2.5}$ concentrations for that observed moderate or higher pollution during 2024 (Period highlighted in orange indicates a widespread particulate matter pollution episode).

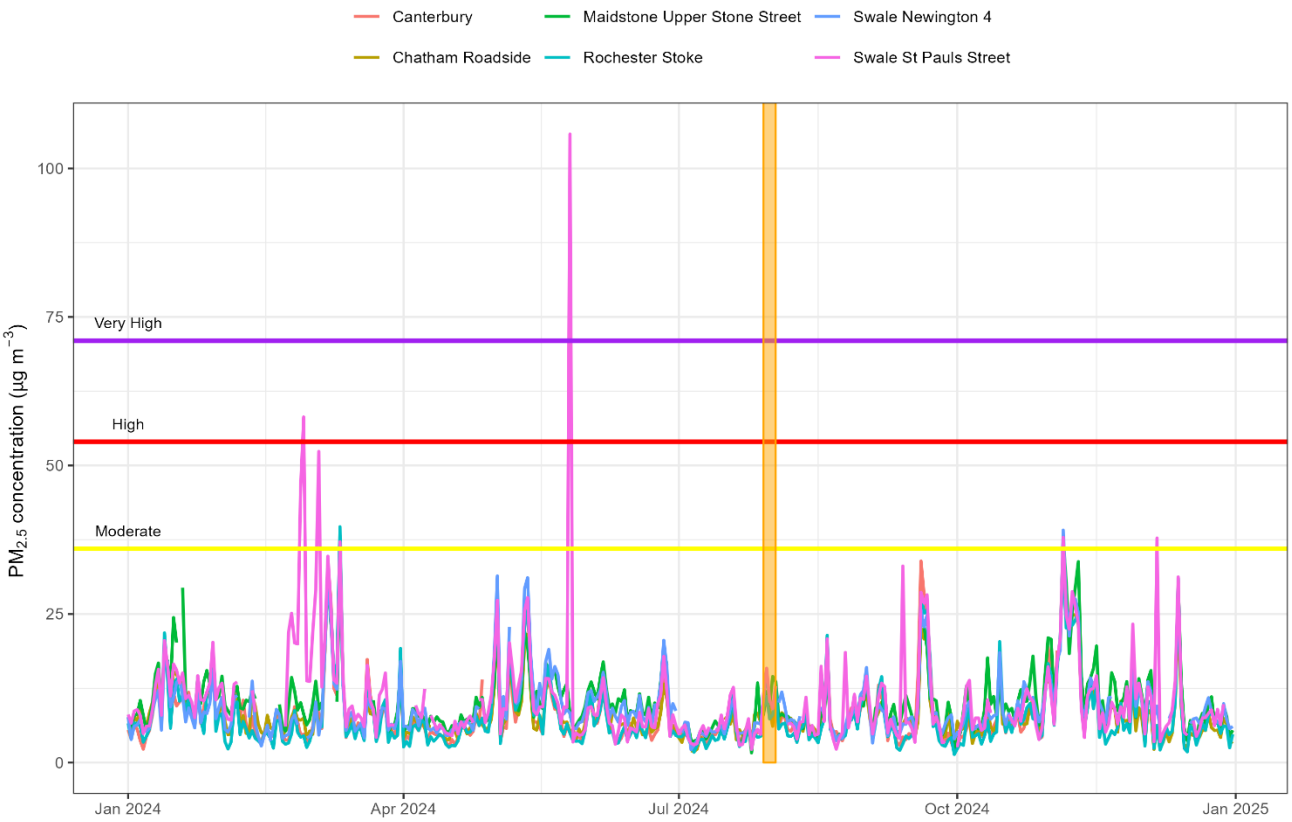
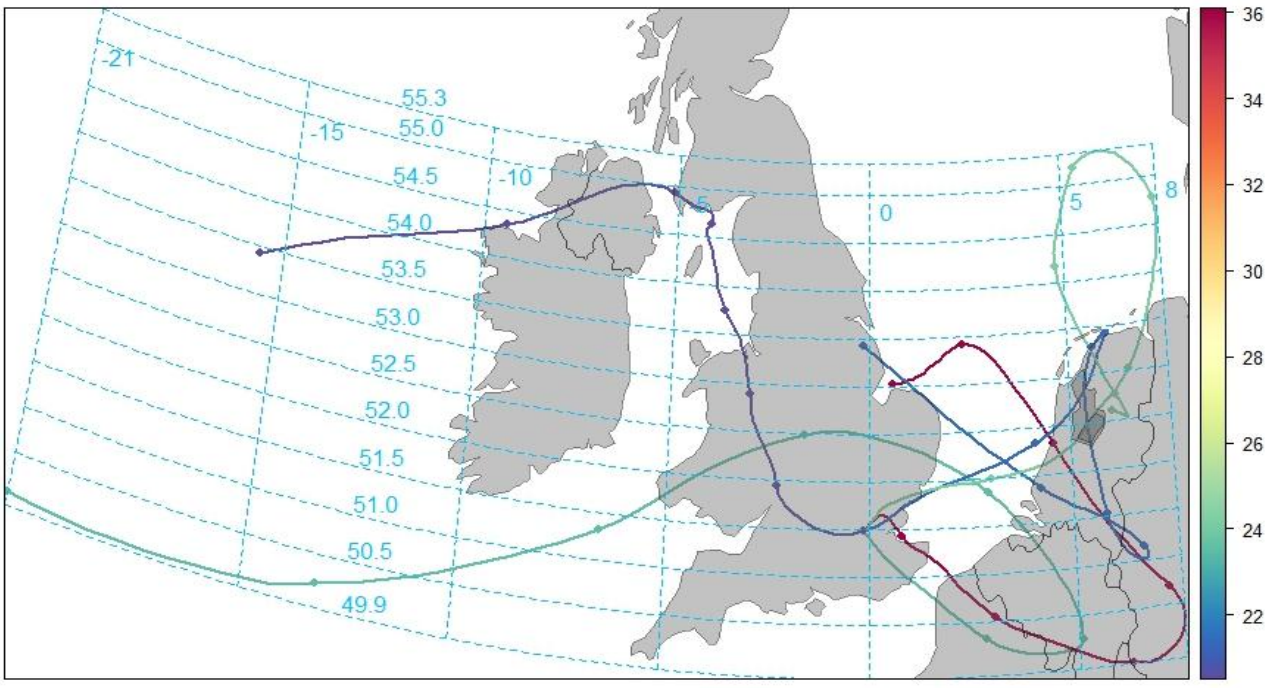


Figure 5: Trajectory plot for the particulate matter pollution episode between 29th July and 2nd August 2024.



3.4.3 Ozone Episodes

Figure 6 shows the daily maximum 8-hour running mean ozone concentrations during 2024 for Canterbury and Rochester Stoke. The limit values that set the thresholds for episodes are described in Section 3.2.

In 2024, Moderate ozone occurred on 17 days. The highest daily maximum 8-hour running mean for ozone was 157.1 μgm^{-3}, recorded at Canterbury on 30th July 2024. Ozone at Rochester on the same day was also elevated at 150.1 μgm^{-3}. Ozone was also shown to peak at both Canterbury and Rochester Stoke on 20th May. Two widespread ozone pollution episodes were recorded in 2024, occurring between 9th May to 12th May and 19th May to 20th May, as shown in Figure 7. Rising temperatures and sunshine combined with air masses moving from the continent, bringing ozone precursors led to increased ozone production in early May. The peak in ozone concentrations measured at Canterbury and Rochester Stoke on 20th May coincided with the second widespread pollution episode recorded across a majority of the UK. This episode was also a result of rising temperatures, continental air masses causing increased ozone production as well as low winds which caused poor dispersion of pollutants.

As discussed in Section 2.4, ozone is formed in the atmosphere via reactions between NOx and VOCs under the presence of sunlight. Therefore, ozone pollution episodes typically occur during the spring and summer months, when the conditions are favourable for ozone production – warm temperatures, sunshine and stable conditions. Ozone can remain in the troposphere (lower part of the atmosphere) for many days and even weeks, so the ozone measured in one location may actually be formed much further downwind.

Figure 6: Ozone maximum 8-hour running mean concentrations for each day during 2024 at Canterbury and Rochester Stoke.

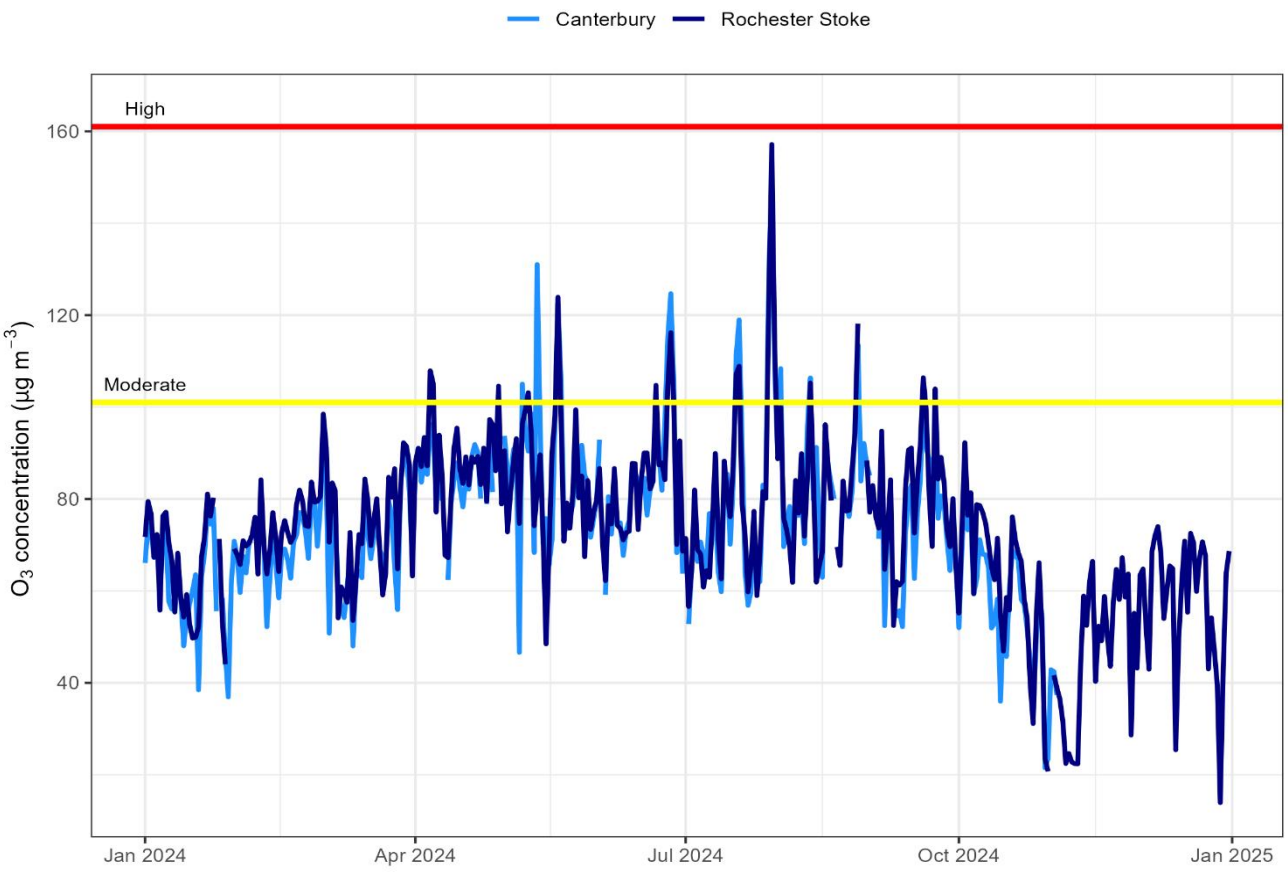
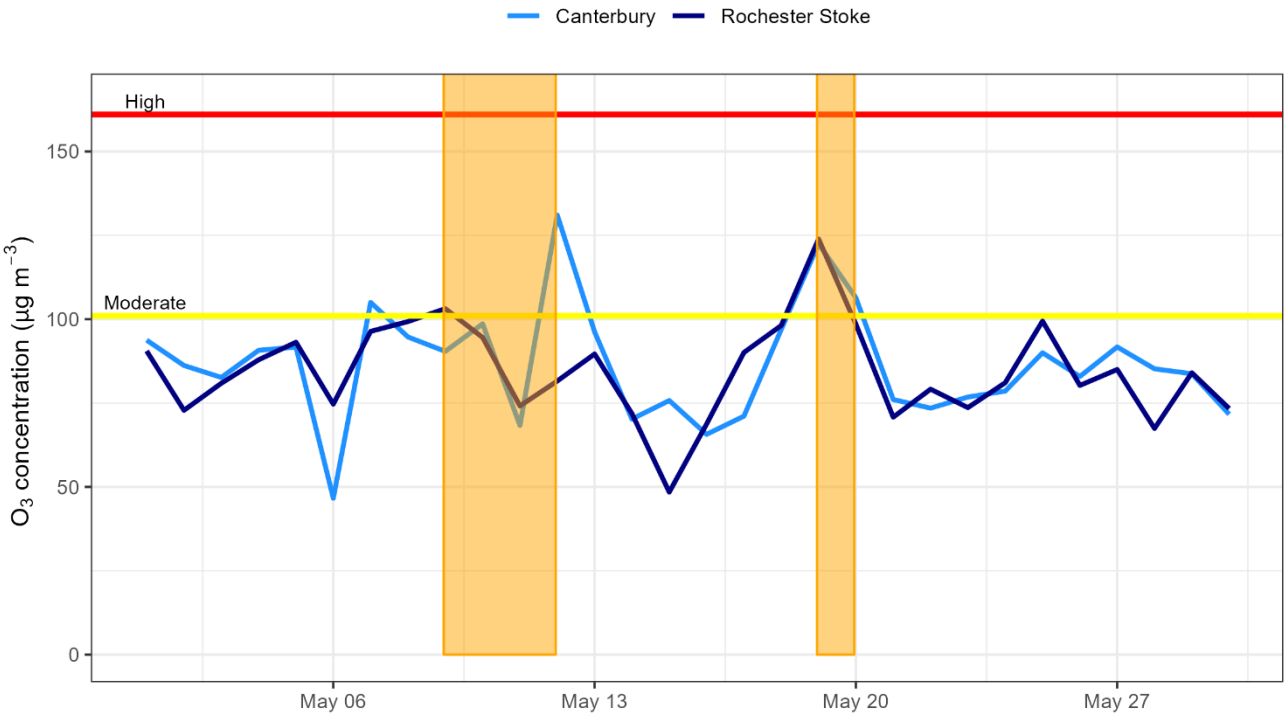


Figure 7: Ozone maximum 8-hour running mean concentrations for each day during May 2024 at Canterbury and Rochester Stoke highlighting widespread O_3 pollution episodes (shown in Orange).



3.5 LONG TERM TRENDS

To assess the changes in pollutant concentrations over time, plots of the annual mean concentrations from 1998 to 2024 have been produced. The annual means for each pollutant and site are compared to the UK averages. For NO_2, PM_{10}, $PM_{2.5}$ and O_3 the UK average annual means are taken from the air quality statistics tables available from Defra[6]. SO_2 UK annual means have been calculated from the hourly SO_2 data, downloaded from UKAir[7]. All annual means are calculated for those years when the data capture rate is 75% or above.

Figure 8 shows long term trends in NO_2 from rural, urban background and traffic monitoring stations in the KMAQMN along with UK averages from 1998 to 2024. NO_2 concentrations in general have decreased in the UK since the late 1990's, most likely due to a reduction in emissions as new Euro standard vehicles are introduced into the fleet, and less coal used in energy generation. There is shown to be an overall decreasing trend in NO_2 concentrations across the KMAQMN, which follows the general trend observed in UK averages. A comparison between NO_2 concentrations measured in 2023 and 2024 shows concentrations at Gravesham Industrial Background, Maidstone Rural, Maidstone Upper Stone Street and Thanet Birchington Roadside increased by between 0.3% and 10%. However, an assessment of a 5-year trend indicates that these sites, as well as all other sites in the KMAQMN have shown decreases of between -19.1% to -41% when compared to 2019. Many sites saw a significant decrease in NO_2 concentrations in 2020, due to a reduction in traffic during the Covid-19 pandemic lockdowns. Some sites across the UK have shown increasing concentrations since 2020 following the reuptake in activity however no sites in the KMAQMN have seen an increase in NO_2 concentrations above pre-covid pandemic levels.

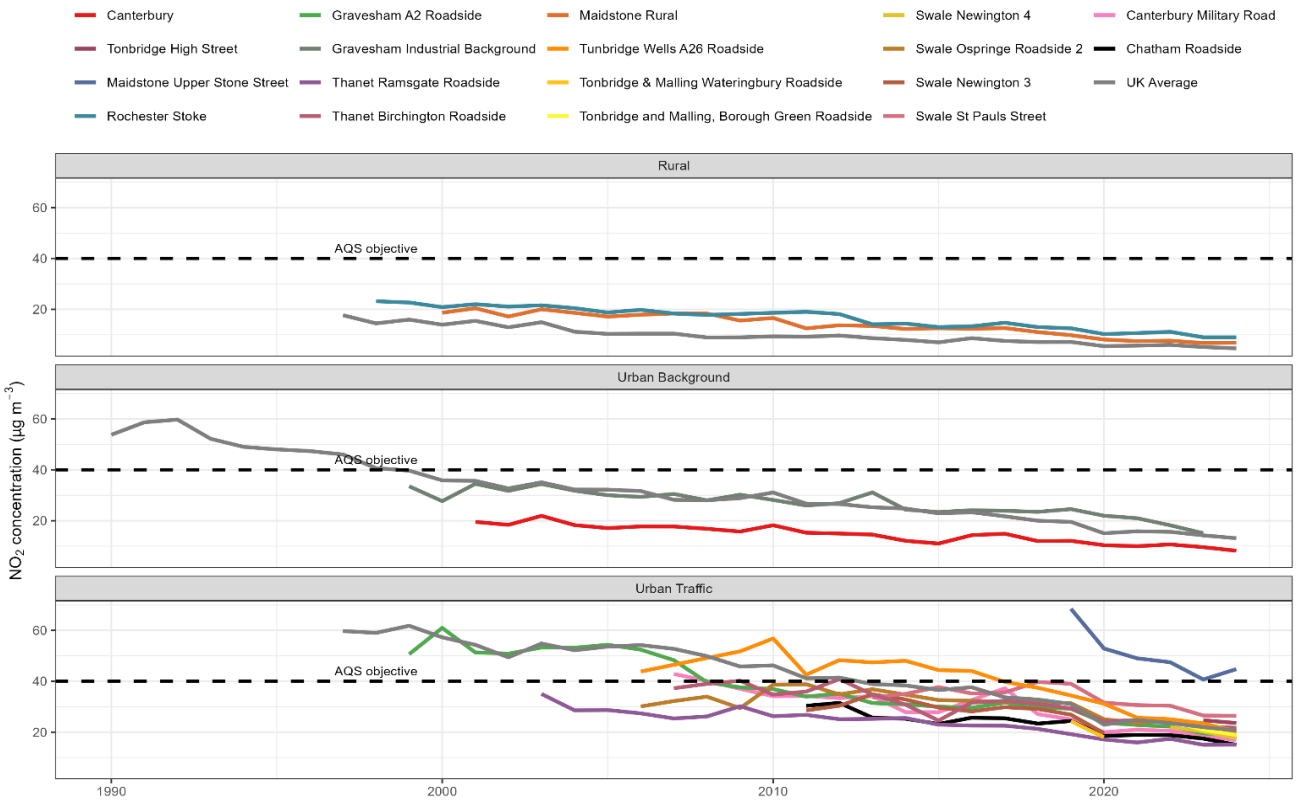
Annual mean NO_2 concentrations at some sites in the KMAQMN are shown to be greater than the UK average. This is likely due to the great variability in NO_2 concentrations from site to site, depending on local sources.

[6] https://www.gov.uk/government/statistical-data-sets/env02-air-quality-statistics
[7] https://uk-air.defra.gov.uk/data/data_selector

Location of sites and local traffic volumes can vary and can cause NO_2 concentrations at different sites to vary significantly, especially in urban areas where NO_2 emissions are primarily from road transport.

The average annual mean NO_2 concentration measured at Roadside sites in the KMAQMN was 22.2 μgm^{-3} in 2024. This is higher than the UK average of 20.6 μgm^{-3} for Roadside sites. It should be noted that UK average calculated using only AURN monitoring sites which follow a different siting criterion than LAQM sites. LAQM siting criteria allows sites to be closer to local sources such as traffic lights and large junctions compared to AURN sites. This may contribute to the elevated KMAQMN Roadside sites annual mean in comparison to the UK average. Similarly, the annual average of the KMAQMN Rural sites was 7.9 μgm^{-3} in 2024, which is higher than the UK average of 4.7 μgm^{-3} . The KMAQMN Urban Background site annual average of 12.0 μgm^{-3} is lower than the UK Urban Background site average of 13.1 μgm^{-3}.

Figure 8: Trends in NO_2 annual means concentrations from rural, urban background and traffic monitoring stations in the KMAQMN, alongside the UK average from 1998 to 2024.



PM_{10} annual mean concentrations at urban background and traffic monitoring stations have shown a decrease since measurements began. Figure 9 shows this overall decreasing trend that follows the UK average. There are no longer any Urban Background sites in the KMAQN that monitor PM_{10} concentrations. In 2024, some sites have shown a small increase in PM_{10} concentrations compared to 2023. Maidstone Rural, Maidstone Upper Stone Street, Swale Newington 4, Swale St Pauls Street and Thanet Birchington Roadside showed increases of between 1.3% and 13.5% when compared to PM_{10} concentrations measured in 2023. Assessing the 5-year trend at these sites shows that PM_{10} concentrations at Maidstone Rural, Maidstone Upper Stone Street and Thanet Birchington Roadside how shown an overall decrease in concentrations since 2019 of between -21.9% and -35.9%. The 5-year trend for Swale Newington 4 could not be assessed as the site was commissioned in 2021. Two sites in the KMAQNM have shown an increase in PM_{10} concentrations when comparing 2019 to 2024. Annual mean PM_{10} concentrations at Swale St Pauls Street and Thanet Ramsgate Roadside have increased by 15.8% and 24.9% respectively, since 2019. Although between 2023 and 2024, PM_{10} concentrations at Thanet Ramsgate Roadside showed a decrease of -6%.

Additional monitoring has been undertaken around Swale St Pauls Street to assess the elevated particulate matter concentrations at this site. These findings have been analysed, and mitigation actions have been implemented. The increase in PM_{10} concentrations at Thanet Ramsgate Roadside between 2019 and 2024 may be partly attributed to the major development occurring in Boundary Rd gas work site remediation for development to a new large retail unit and residential site.

Annual PM_{10} concentrations measured at traffic monitoring sites are shown to be higher than the UK average, excluding Gravesham A2 Roadside and Tunbridge Wells A26 which are shown to be lower than the UK average. As the UK average includes all roadside stations in the UK, some of these may be located in areas which have much lower traffic volumes, and a lighter fleet composition thereby resulting in a lower annual mean concentration. PM_{10} concentrations can also vary significantly across sites due to the number of sources of this pollutant. Furthermore, in the South-East, there is an increase susceptibility to pollution transported from the continent under certain meteorological conditions due to the proximity to Europe.

Figure 9: Trends in PM_{10} annual means concentrations from urban background and traffic monitoring stations in the KMAQMN, alongside the UK average from 1998 to 2024.

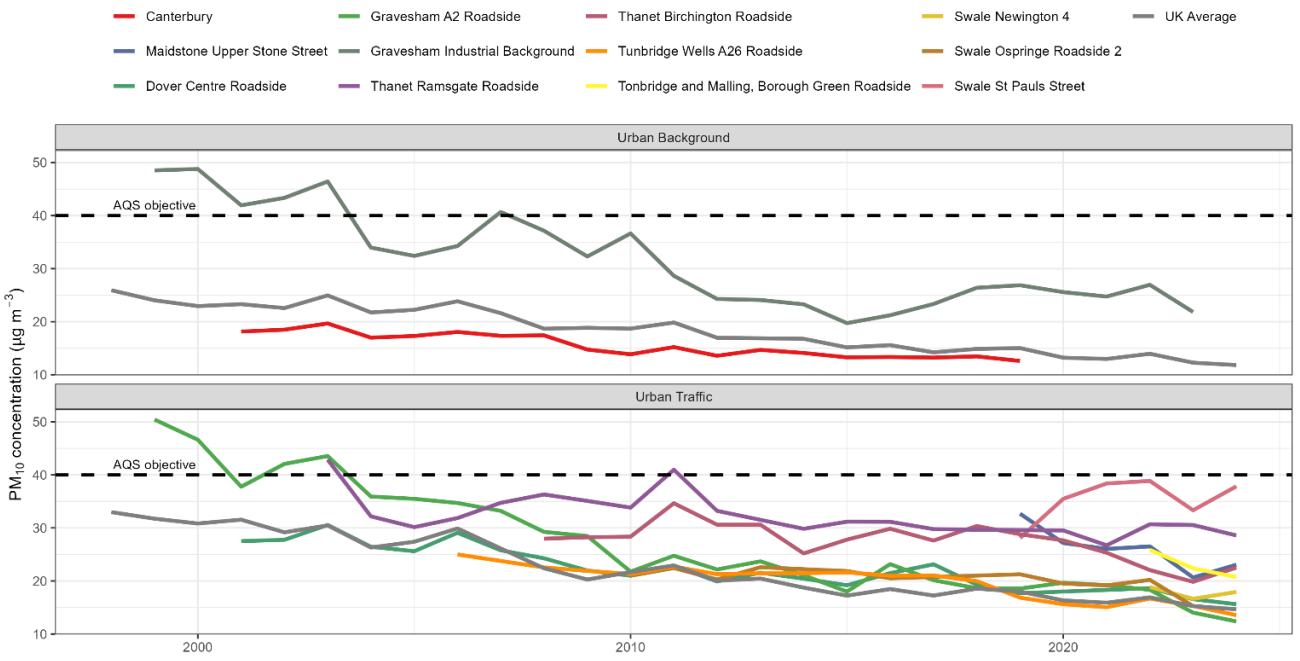
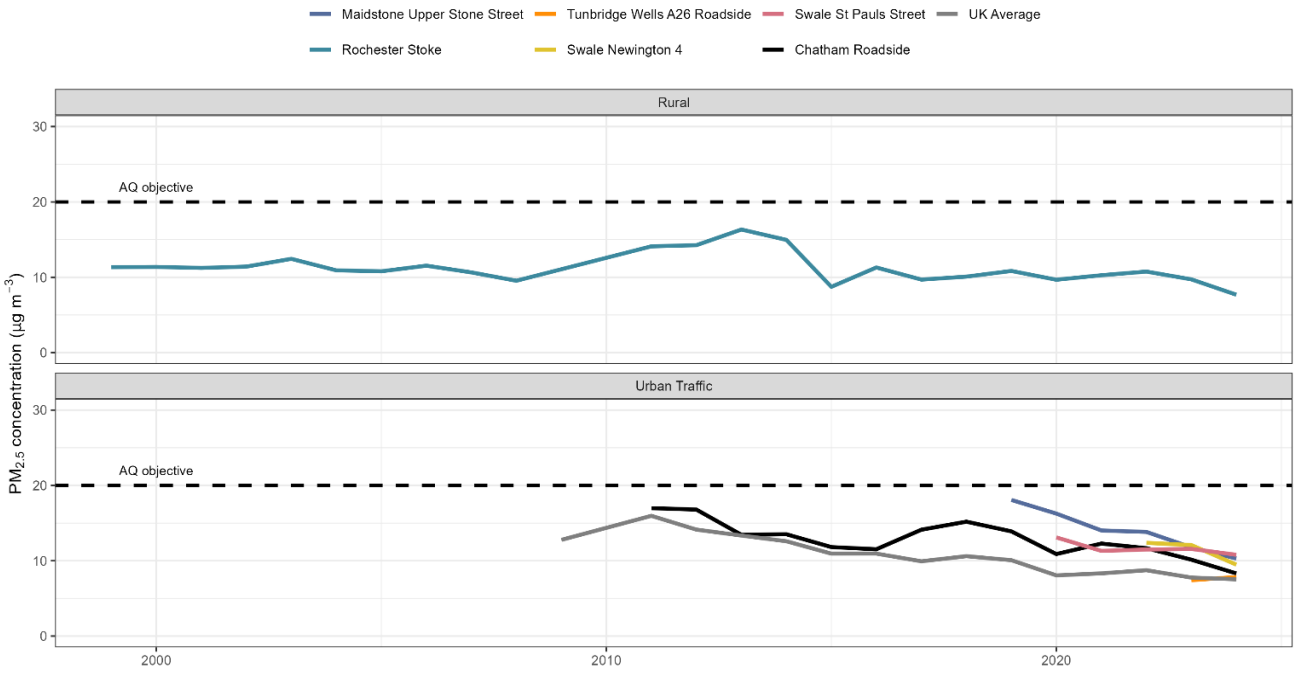


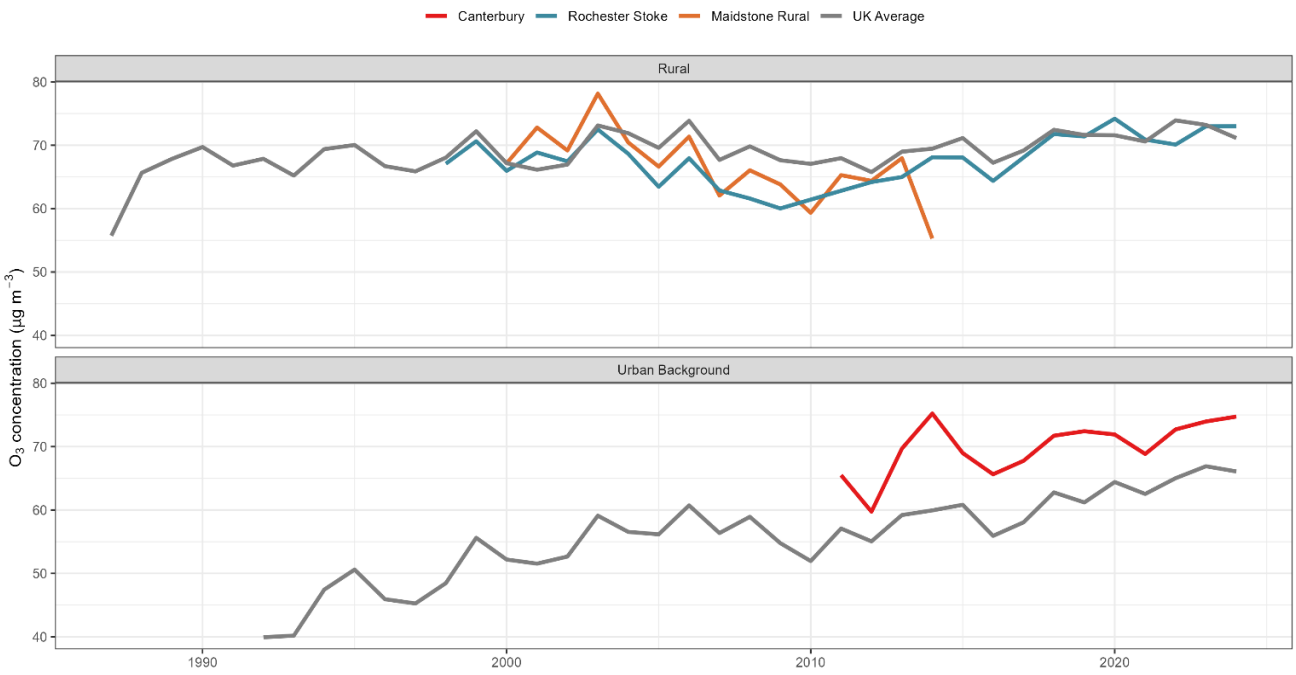
Figure 10 shows long term trends in $PM_{2.5}$ from rural and traffic monitoring stations in the KMAQMN. As there are no UK averages available for $PM_{2.5}$ concentrations at rural monitoring sites, a comparison with UK averages is only undertaken for the traffic monitoring sites. In 2024, annual mean $PM_{2.5}$ concentrations at the four traffic monitoring sites in the KMAQMN were shown to be higher than the UK annual average of 7.5 μgm^{-3} for roadside monitoring sites. Annual $PM_{2.5}$ concentrations measured at Tunbridge Wells A26 Roadside are shown to be similar than the UK annual average $PM_{2.5}$ concentration. In 2024, $PM_{2.5}$ concentrations measured across the KMAQMN are shown to be between -6.7% and -21.0% lower than concentrations measured in 2023, except for Tunbridge A26 Roadside which showed an increase of 5.6% compared to 2023. Since 2019, all sites have shown a decrease of between -29.1% and -43.0% in $PM_{2.5}$ concentrations. More data is needed from Tunbridge Wells A26 Roadside and Swale Newington 4 sites to assess overall long-term trends in $PM_{2.5}$ concentrations at these monitoring locations.

Figure 10: Trends in $PM_{2.5}$ annual means concentrations from rural and traffic monitoring stations in the KMAQMN, alongside the UK average from 1998 to 2024.



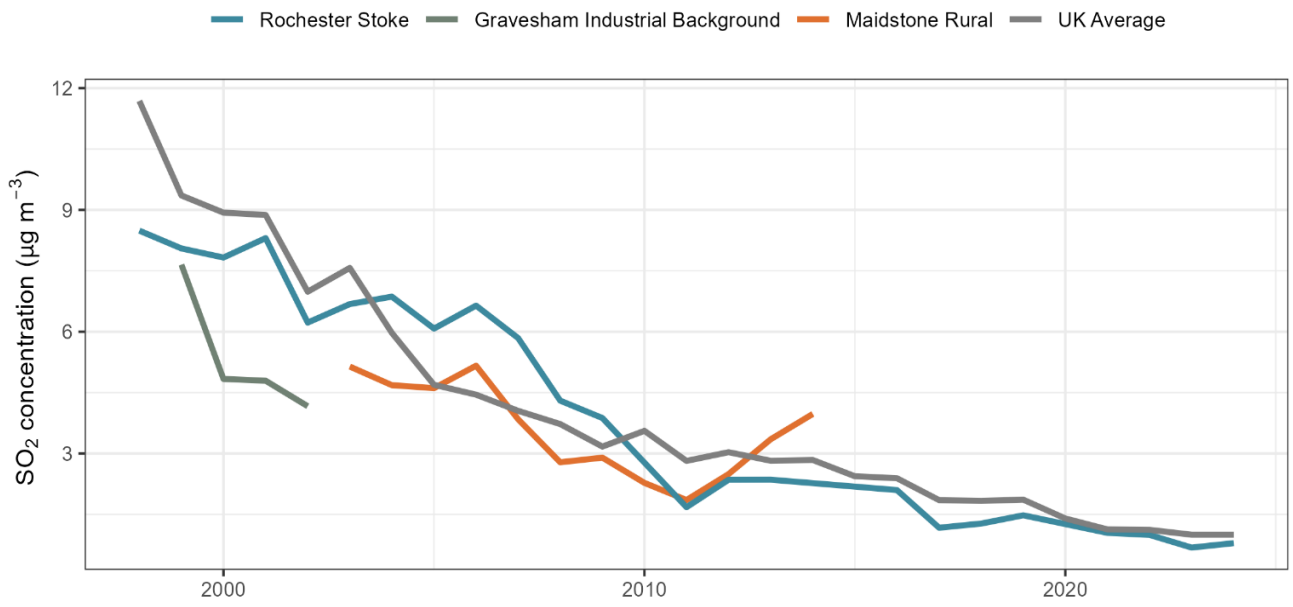
Ozone trends for rural and urban background monitoring stations are compared to the UK averages in Figure 11. The annual mean daily maximum running 8-hour mean ozone concentration is compared here, as this provides a better comparison of peak ozone concentrations year on year. Ozone concentrations measured at Rochester Stoke in 2024 are shown to be similar to the annual mean measured in 2023. The UK annual average ozone concentrations for rural sites shows a decrease when comparing 2024 to 2023, however still shows a long-term trend of increasing concentrations. Comparatively, ozone concentrations measured at Canterbury are shown to increase by 1.4% when comparing 2024 to 2023. Both Canterbury and Rochester Stoke show and increase in O_3 concentrations of 9.1% and 6.8% respectively when compared to 2019, this follows the trend exhibited by the UK annual average and continues the overall increasing trend since monitoring began at these sites. Ozone concentrations can vary greatly year on year as the formation of ozone is strongly dependant on meteorological conditions. Due to the decommissioning of the Canterbury monitoring site in 2024, O_3 is currently only measured at one site in the KMAQMN, however, plans are underway to replace the Canterbury site.

Figure 11: Trends in the annual mean of the daily maximum 8-hour mean O_3 concentrations from rural and urban background monitoring stations in the KMAQMN alongside the UK average from 1998 to 2024.



Sulphur dioxide concentrations have been shown to drastically reduce over the past few decades as a result of limitations put into place on the amount of sulphur in fuels and the reduction in power plants that use coal. Figure 12 shows SO_2 concentrations measured at Rochester Stoke increase by 16.1% between 2023 and 2024. Despite a large percentage change, SO_2 concentrations at Rochester Stoke increase from 0.68 μgm^{-3} in 2023, to 0.79 μgm^{-3} in 2024, as measured concentrations of SO_2 are low, small changes in concentrations can highlight as large percentage changes. However, assessment of the 5-year trend at this site shows an overall decrease of -46.4% between 2019 and 2024, which closely follows the long-term decreasing trends seen in the UK average.

Figure 12: Trends in SO_2 annual means concentrations from the KMAQMN alongside the UK average from 1998 to 2024.



3.6 TEMPORAL VARIATION OF POLLUTANT CONCENTRATIONS

In this section temporal variations of the pollutant concentrations at each site are assessed using the openair R package 'timeVariation' function.

Figure 13 shows the daily, weekly, and monthly variations in NO_2 concentrations in 2024, for each of the monitoring stations. The plot shows diurnal trends in NO_2 concentrations at each site are similar, although vary in magnitude. Peaks in NO_2 are typically observed in the morning and evening at all monitoring sites in the KMAQMN and daily concentrations are lowest at the weekend. This indicates that road traffic is likely to be a prominent source of NO_2 at these monitoring locations.

The variations in ozone concentrations at the Canterbury and Rochester Stoke are very similar, as shown in Figure 14. Both sites show peaks in ozone concentrations in the mid-afternoon. This is an expected daily trend as this is the period when photochemical production of ozone is greatest, and there is also less NO available to react with and remove ozone. At both sites, ozone concentrations are shown to peak in April. This is peak is expected as meteorological conditions are conducive to ozone formation.

Figure 13: Daily, weekly and monthly variation in NO_2 concentrations at each monitoring station for 2024

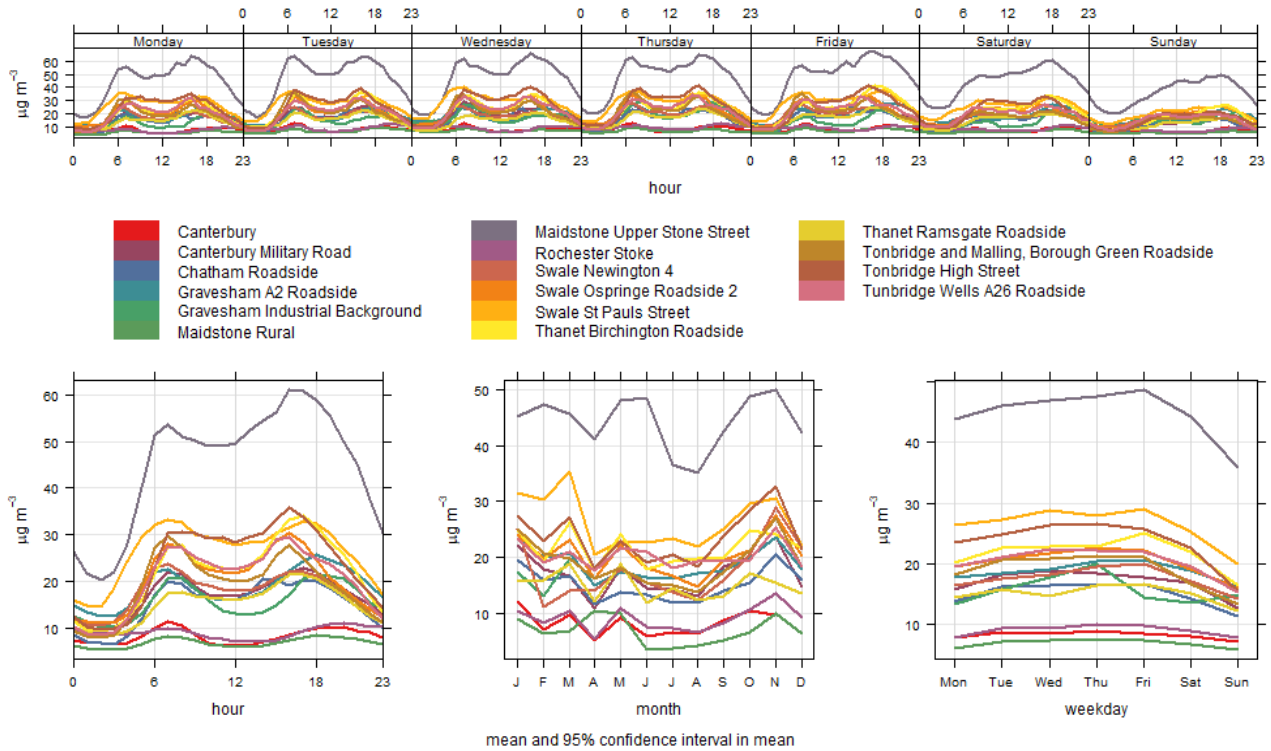


Figure 14: Daily, weekly and monthly variation in O_3 concentrations at each monitoring station for 2024.

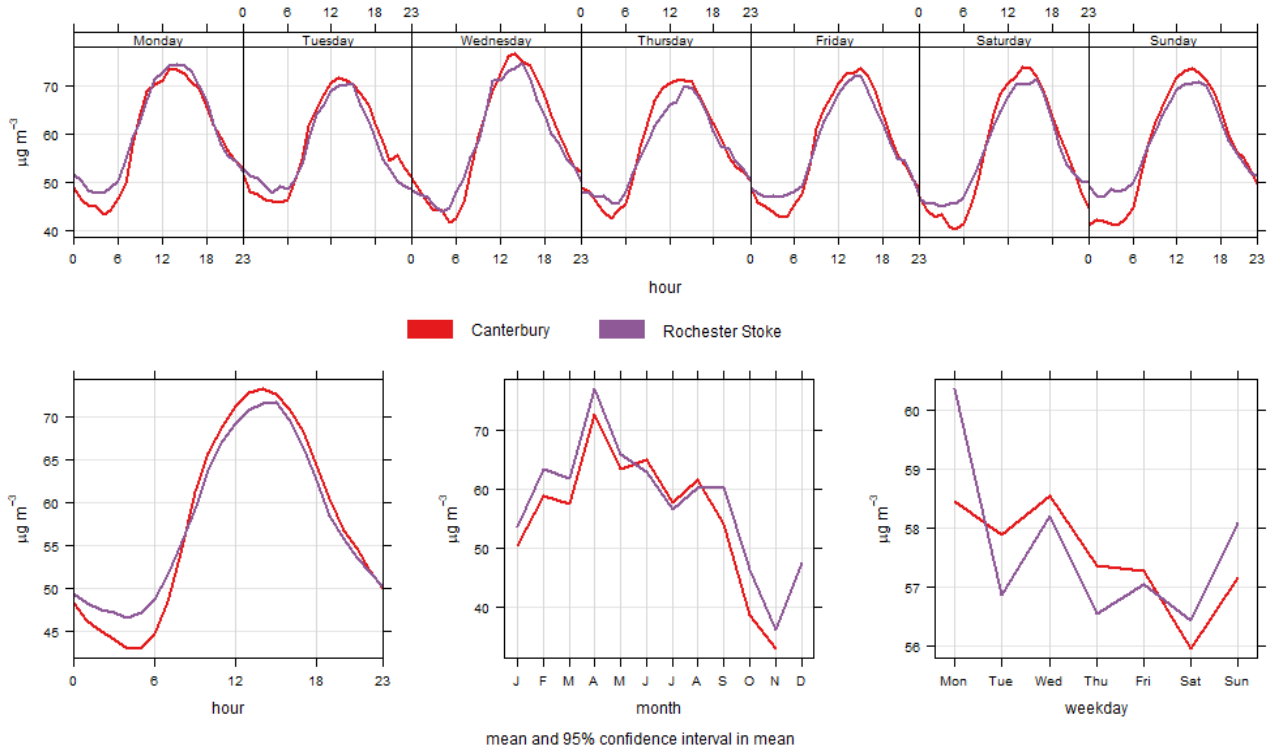


Figure 15 shows high variability in diurnal trends in PM_{10} concentrations at KMAQMN sites. Some sites show morning and afternoon peaks in PM_{10} concentrations, whereas other sites show concentrations remain elevated throughout the day. The peak in PM_{10} concentrations at Swale St Pauls Street is shown to be significantly higher compared to other monitoring sites. PM_{10} concentrations at Thanet Birchington Roadside show a different pattern, with concentrations remaining similar throughout the day and also remaining elevated overnight compared to other monitoring sites. This pattern in PM_{10} concentrations at Thanet Birchington Roadside is likely due to local sources, such as nearby restaurants, food takeaway businesses and bus stops.

Figure 16 shows $PM_{2.5}$ concentrations exhibit a different diurnal pattern to PM_{10} concentrations with pronounced morning and afternoon peaks. The afternoon peak is also shown to be of greater magnitude at most sites in comparison to the morning peak in concentrations. Monthly and weekly trends in $PM_{2.5}$ are also shown to be similar between sites.

Figure 15: Daily, weekly and monthly variation in PM_{10} concentrations at each monitoring station for 2024.

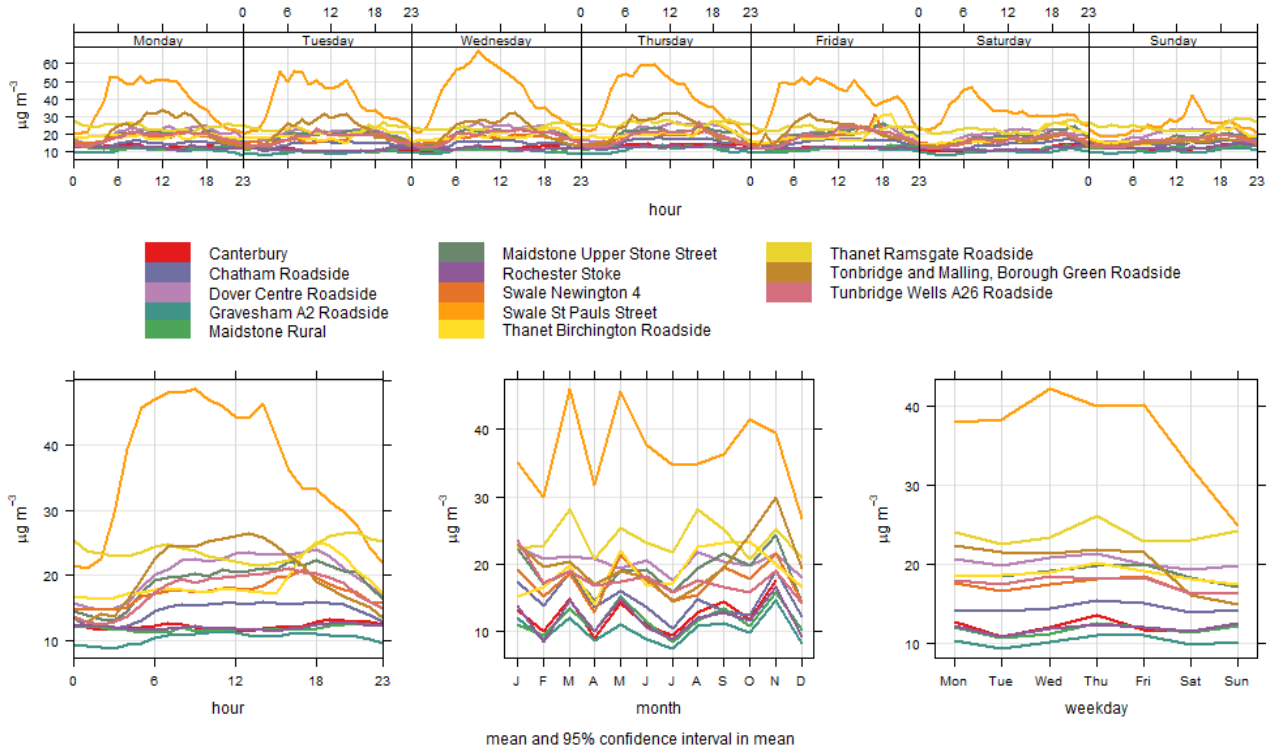
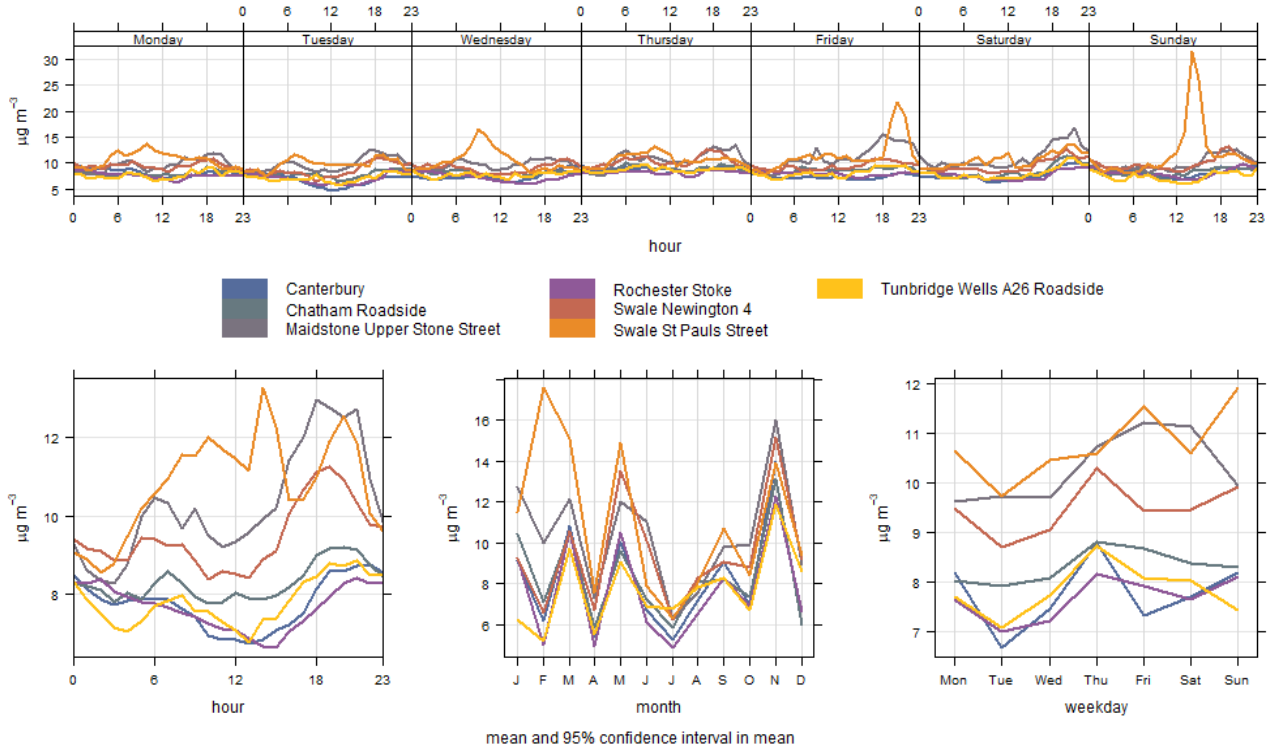


Figure 16: Daily, weekly and monthly variation in $PM_{2.5}$ concentrations at each monitoring station for 2024.



4. DIFFUSION TUBE MONITORING RESULTS

In addition to the automatic monitoring sites, the local authorities within the KMAQMN undertaken indicative measurements of Nitrogen dioxide using diffusion tubes. Diffusion tubes measure NO_2 via passive sampling. A reagent within the tube absorbs ambient NO_2 over a period of days or weeks. The tubes are then collected and analysed in a laboratory to determine the average concentration of NO_2 over the period the tube was exposed. As diffusion tubes are small and require no power, they can be easily attached to street furniture or façades of buildings. A network of these tubes can provide useful information on the spatial variation of NO_2 concentrations.

In this section a summary of the NO_2 diffusion tubes deployed in each local authority are presented for 2024. Table 4-1 shows the total number of sites operating during 2024, by each authority. At some locations, diffusion tubes are exposed in triplicate but are counted as one site here. Results and location information for each local authority's diffusion tube network are available through the KentAir website[8].

Table 4-1 NO_2 diffusion tube sites in Kent and Medway in 2024.

Local Authority	Number of Sites	Comments	Analytical Laboratory
Ashford Borough Council	25	1 triplicate location	Socotec (50% TEA in acetone)
Canterbury City Council	33	2 triplicate locations	Socotec (50% TEA in acetone)
Dover District Council	21	3 triplicate locations	Socotec (50% TEA in acetone)
Folkstone and Hythe District Council	18	-	Socotec (50% TEA in acetone)
Gravesham Borough Council	65	5 triplicate locations	Socotec (50% TEA in acetone)
Maidstone District Council	33	2 triplicate locations	Socotec (50% TEA in acetone)
Medway Council	41	-	Socotec (50% TEA in acetone)
Swale District Council	61	4 triplicate locations	Socotec (50% TEA in acetone)
Thanet District Council	43	3 triplicate locations	Socotec (50% TEA in acetone)
Tonbridge and Malling Borough Council	37	10 triplicate locations	Socotec (50% TEA in acetone)
Tunbridge Wells Borough Council	23	2 triplicate locations	Socotec (50% TEA in acetone)

[8] NO2 diffusion tube data - KentAir

4.1.1 Site classifications

NO_2 diffusion tubes sites are classified according to the site classifications stated in the Local Air Quality Management Technical Guidance LAQM (TG22)[9]

Table 4-2 Site classifications used for NO_2 diffusion tube sites.

Urban centre	An urban location representative of typical population exposure in towns or city centres, for example, pedestrian precincts and shopping areas
Urban background	An urban location distanced from sources and therefore broadly representative of citywide background conditions, e.g. urban residential areas
Suburban	A location type situated in a residential area on the outskirts of a town or city
Roadside	A site sampling typically within one to five metres of the kerb of a busy road (although distance can be up to 15 m from the kerb in some cases)
Kerbside	A site sampling within one metre of the kerb of a busy road
Industrial	An area where industrial sources make an important contribution to the total pollution burden
Rural	An open countryside location, in an area of low population
Other	Any special source-orientated or location category covering monitoring undertaken in relation to specific emission sources such as power stations, carparks, airports or tunnels

The majority of the NO_2 diffusion tube sites within the KMAQMN are classified as either kerbside or roadside, with a few urban background, suburban rural and industrial sites. It is not always the case that kerbside sites measure higher NO_2 concentrations than roadside sites, despite being located closer to the road edge, as it also depends on the volume of traffic on the road. Therefore, kerbside and roadside sites are considered together in this report under one category, “Urban Traffic”.

4.1.2 Bias adjustment, annualisation and fall-off with distance

NO_2 diffusion tubes provide a low-cost method of measuring ambient NO_2, however the method is not as precise or accurate as automatic NO_2 monitoring techniques, hence they can only be used for “indicative” measurements of NO_2. Diffusion tubes can also be affected by interferences which can result in positive or negative biases, when compared to automatic monitoring techniques. As such annual mean concentrations derived from the monthly NO_2 diffusion tube samples require to be “bias-corrected”.

Local bias correction factors may be determined by locating triplicate tubes next to an automatic analyser and calculating the ratio of the annual means from both methods. The calculated bias correction factor can then be used to correct the diffusion tube data for the local authority. If a local authority does not have an automatic monitoring station, national bias adjustment factors[10] may be used. National bias adjustment factors are based on co-location studies from many sites in the UK. A factor is calculated for each analysing laboratory, preparation method and year.

If a diffusion tube has between 3 and 8 months of data, then the data needs to be annualised to calculate the annual mean. Diffusion tubes with less than 3 months of data cannot be annualised. Annualisation is performed by comparing the data from diffusion tubes to nearby automatic monitoring stations. Further information on

[9] https://laqm.defra.gov.uk/wp-content/uploads/2022/08/LAQM-TG22-August-22-v1.0.pdf
[10] https://laqm.defra.gov.uk/air-quality/air-quality-assessment/national-bias/

annualisation of diffusion tubes is provided in the Local Air Quality Management Technical Guidance LAQM (TG22).

Diffusion tubes are typically placed at locations of relevant exposure. However, this is not always possible, therefore, local authorities can use the NO_2 fall-off with distance calculator[11] to predict the annual mean concentration of NO_2 at the nearest relevant receptor.

4.1.3 Final annual means and comparison with AQ objectives for each LA

In this section bias-adjusted and annualised (where relevant) diffusion tube NO_2 annual mean concentrations for each local authority are shown, along with the AQS objective of 40 μgm^{-3}. The data is taken directly from each local authority's published annual status report located on the KentAir website here: https://kentair.org.uk/reports.

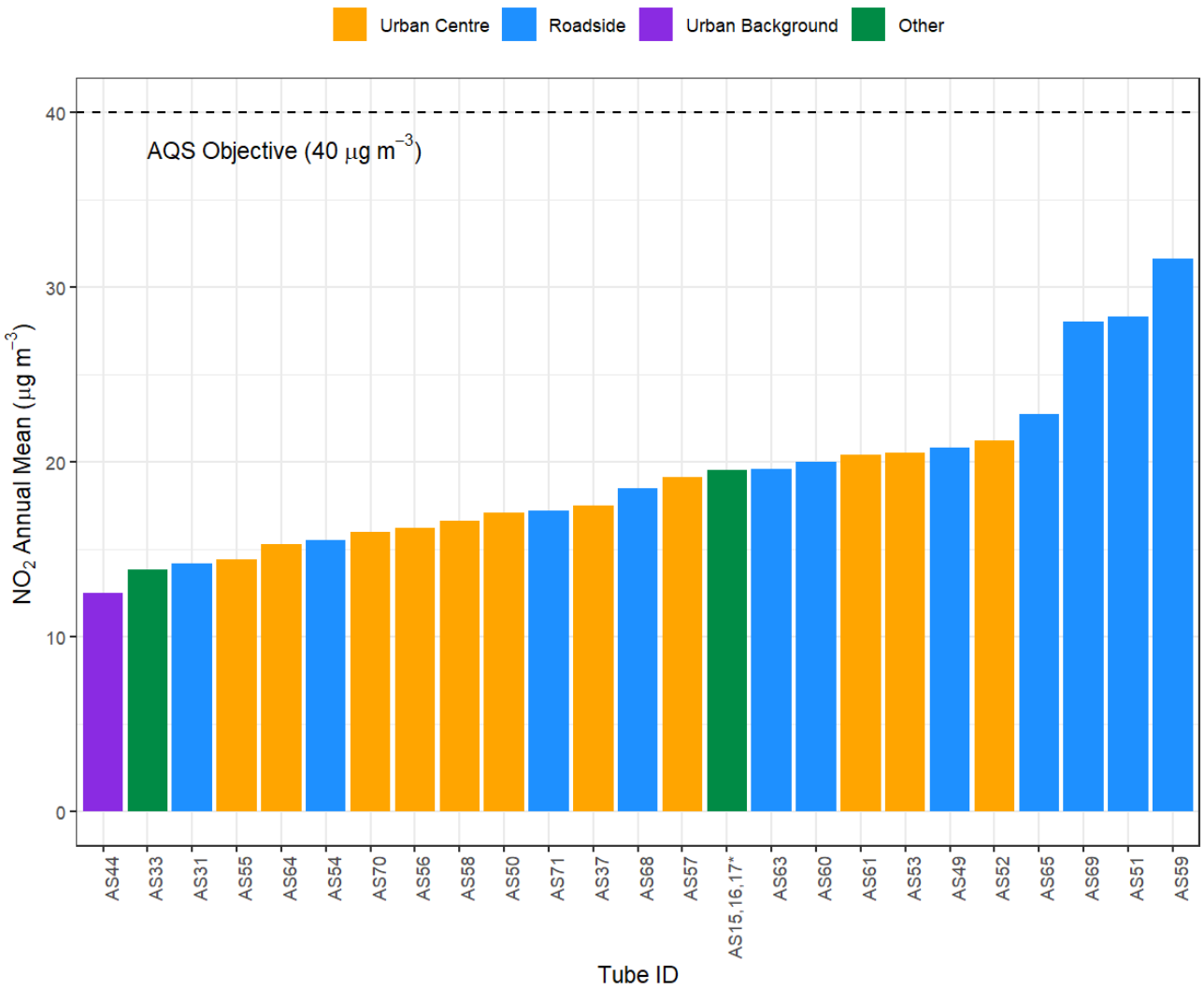
As diffusion tubes with less than 3 months of data cannot be annualised, the annual means for these tubes are not shown here. Sites with triplicate tubes are given by an asterisk (*), and a single value for the site shown, if this is how it is presented in the ASR. Please note that NO_2 concentrations presented in Figure 17 to Figure 27 are not corrected for fall-off with distance (where relevant) and represent the concentrations measured at the tube location, rather than the nearest relevant receptor.

[11] https://laqm.defra.gov.uk/air-quality/air-quality-assessment/no2-falloff/

4.1.3.1 *Ashford Borough Council*

In Ashford Borough NO_2 annual mean concentrations were measured at 25 diffusion tube sites in 2024. Of these, 11 sites were classified as Roadside, 1 as Urban Background, 11 as Urban Centre and 2 as Other (Other are located near motorways). Annual mean concentrations at all sites were below the AQS objective in 2024. The highest annual mean recorded at a diffusion tube site was 31.6 μgm^{-3}, recorded at the site on Romney Marsh Road (AS59).

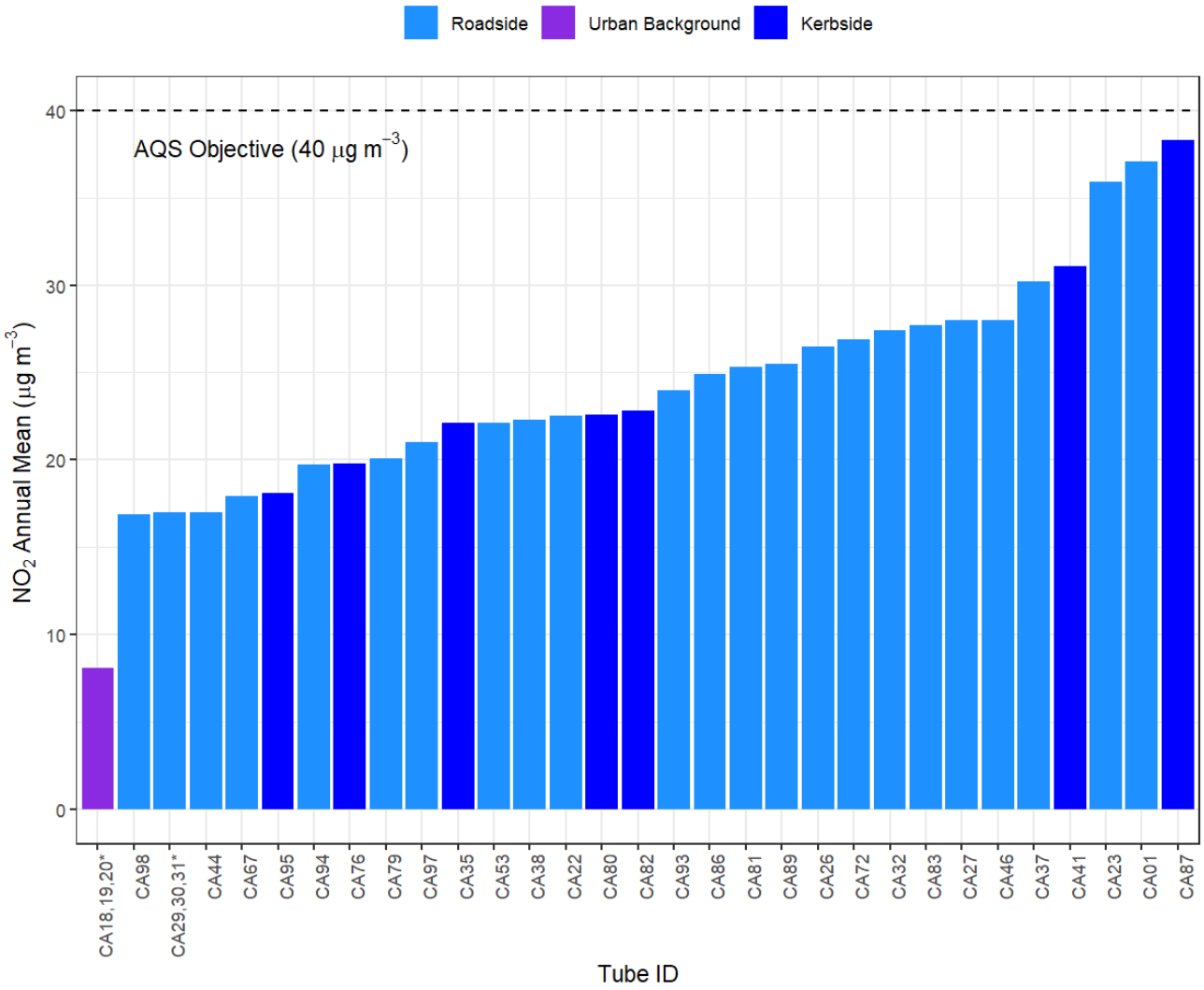
Figure 17: Ashford Borough Council diffusion tube NO_2 annual means for 2024.



4.1.3.2 *Canterbury City Council*

In Canterbury NO_2 annual mean concentrations were measured at 33 diffusion tube sites in 2024. Of these, 24 sites are classified as Roadside, 8 sites as Kerbside, and 1 as Urban Background. However, two sites (CA28 and CA63) had no valid data capture for 2024 therefore annual mean concentrations are not available. Annual mean concentrations at all sites, were below the AQS objective in 2024. Two sites were within 10% of the AQS objective (CA01 and CA87).The highest annual mean NO_2 concentration recorded at a diffusion tube site was 38.3 μgm^{-3} recorded at the diffusion tube site at 32 St George's Place, Canterbury (CA87).

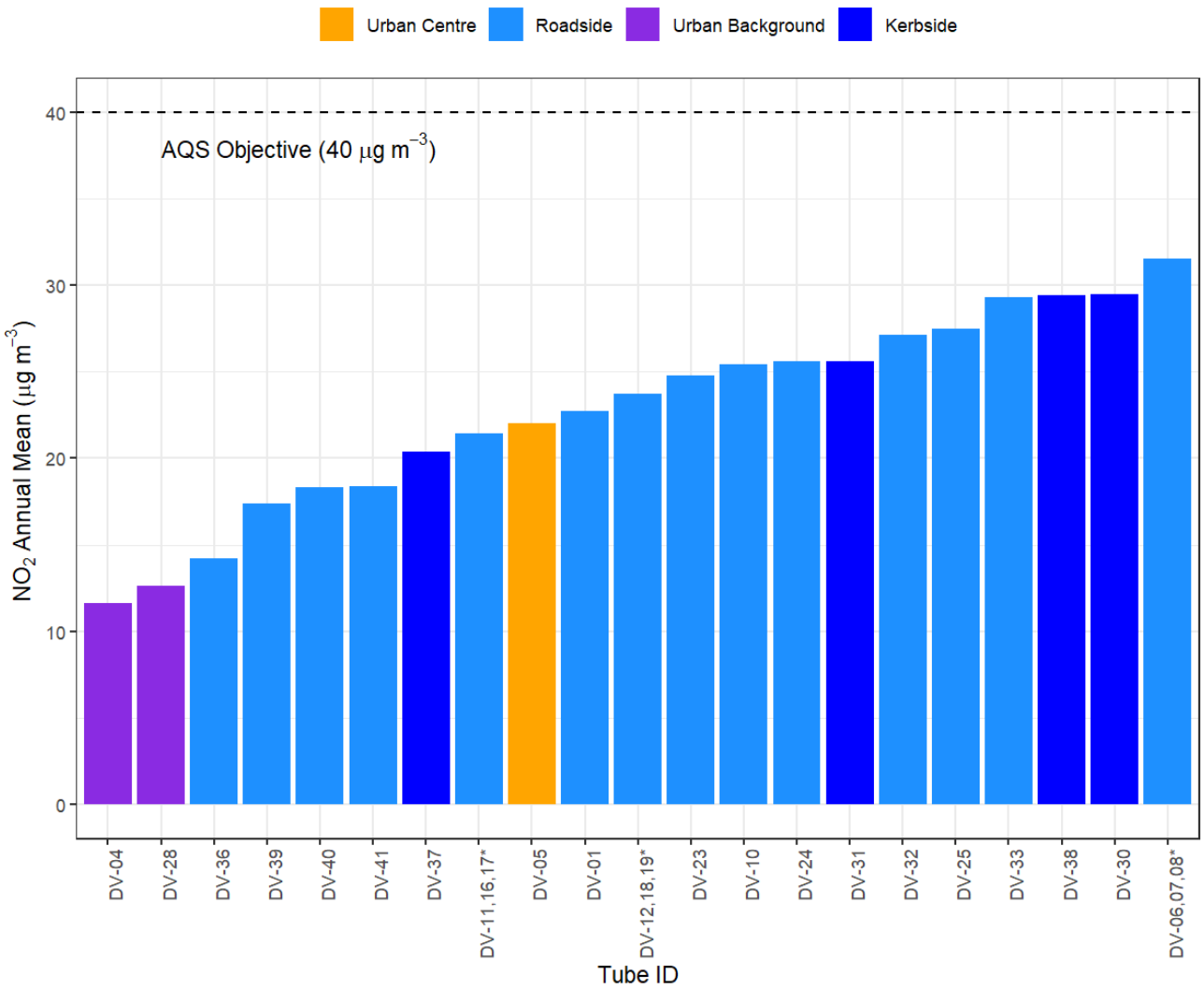
Figure 18: Canterbury City Council diffusion tube NO_2 annual means for 2024.



4.1.3.3 *Dover District Council*

In Dover NO_2 annual mean concentrations were measured at 21 diffusion tube sites in 2024. Of these, 14 sites are classified as Roadside, 4 as Kerbside, 2 as Urban Background and 1 as Urban Centre. Annual mean concentrations at all sites were below the AQS objective in 2024. The highest annual mean NO_2 concentration recorded was 31.5 μgm^{-3} recorded at the diffusion tube triplicate site at Dover Town Hall (DV-06, DV07, and DV-08).

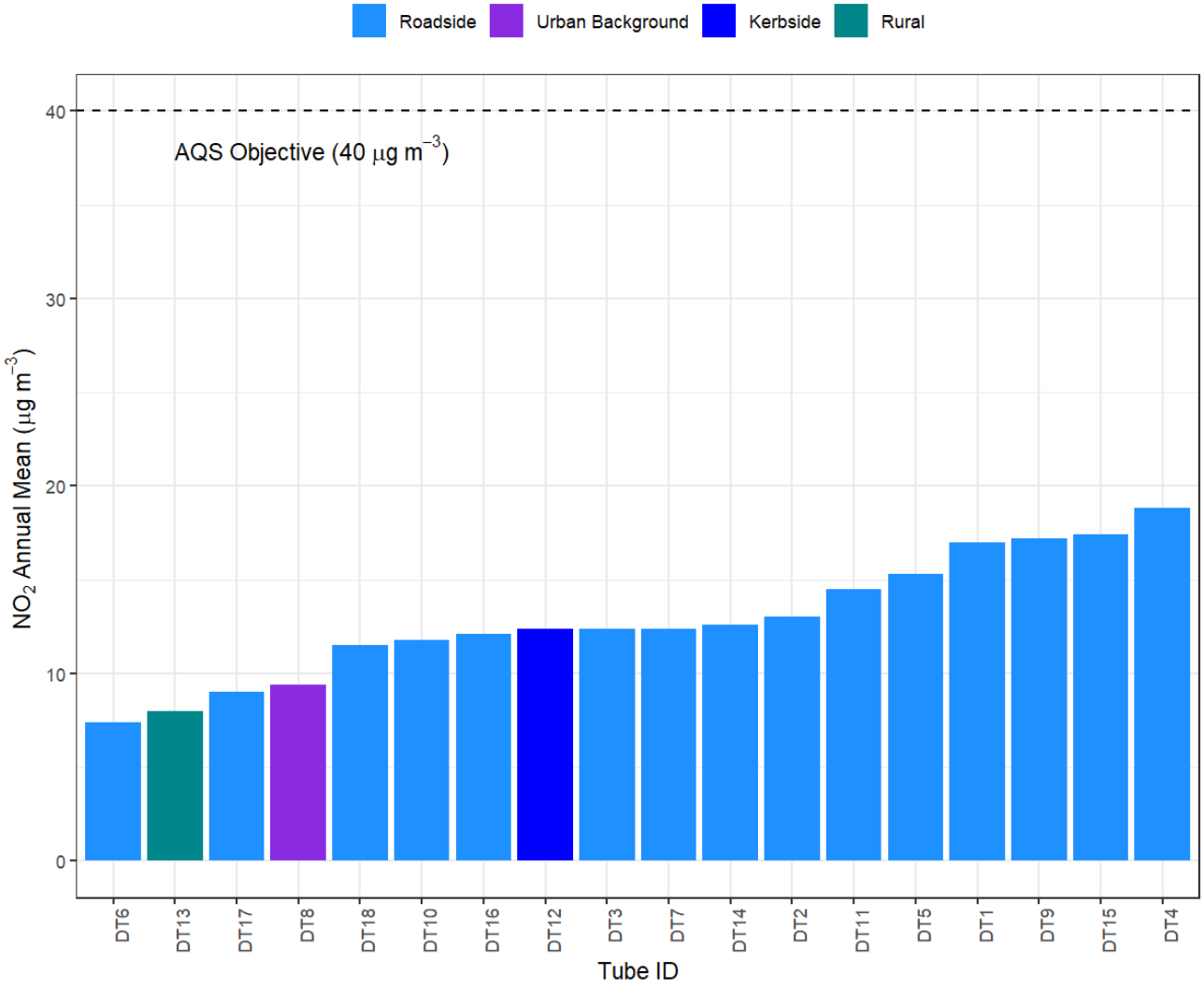
Figure 19: Dover District Council diffusion tube NO_2 annual means for 2024.



4.1.3.4 *Folkstone and Hythe District Council*

In Folkestone and Hythe NO_2 annual mean concentrations were measured at 18 diffusion tube sites in 2024. Of these, 15 site is classified as Roadside, 1 as Kerbside, 1 as Rural, and 1 as Urban Background. Annual mean concentrations at all sites were below the AQS objective in 2024. The highest annual mean recorded at a diffusion tube site was 18.8 μgm^{-3}, recorded at the site on Black Bull Road (DT4).

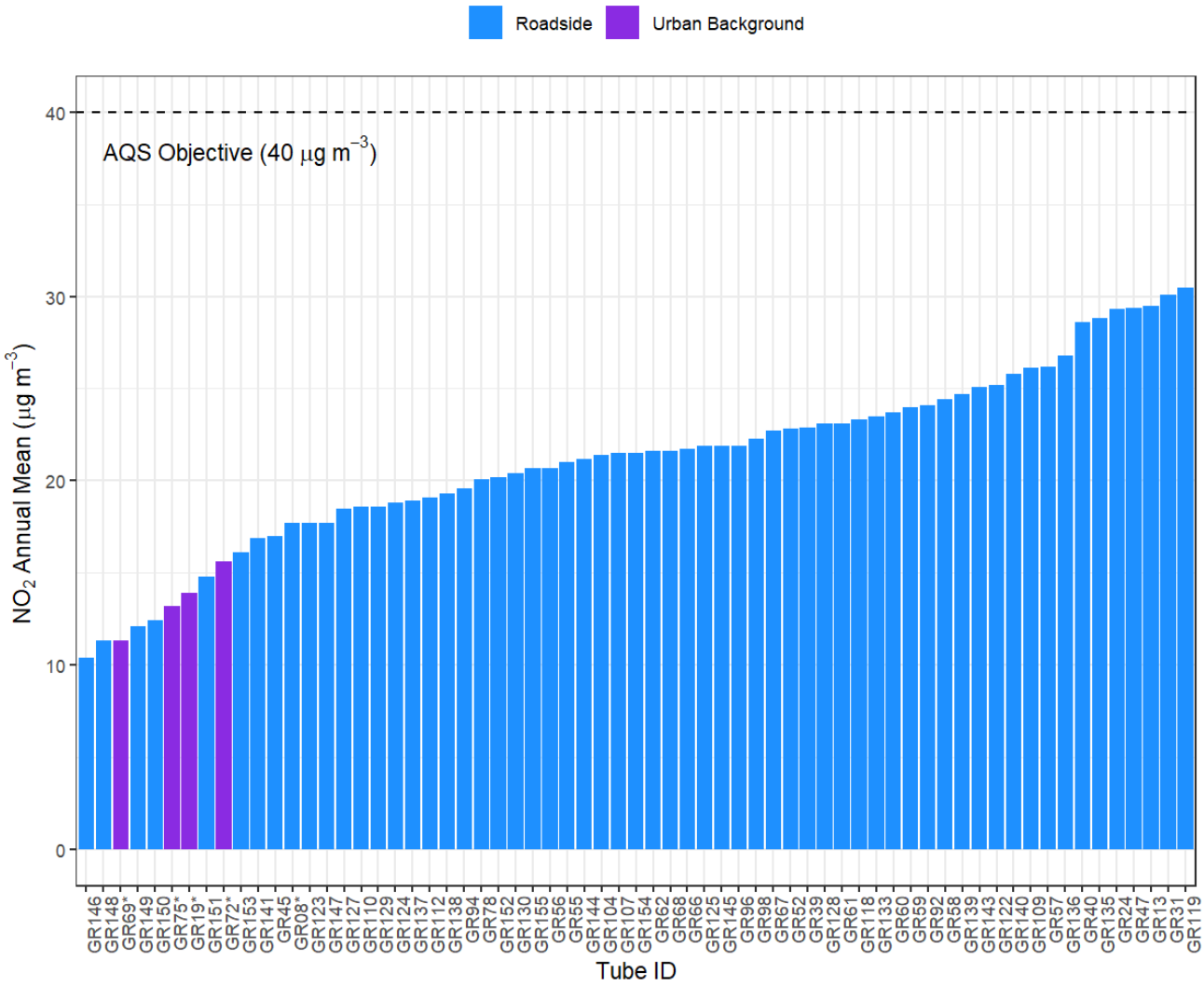
Figure 20: Folkstone and Hythe District Council diffusion tube NO_2 annual means for 2024.



4.1.3.5 *Gravesham Borough Council*

In Gravesham, NO_2 annual mean concentrations were measured at 65 diffusion tube sites in 2024. Of these, 61 sites are classified as Roadside, and 4 as Background. Annual mean concentrations at all sites were below the AQS objective in 2024. The highest annual mean NO_2 concentration recorded was 30.5 μgm^{-3} recorded at the diffusion tube site at Woodville Place (GR119).

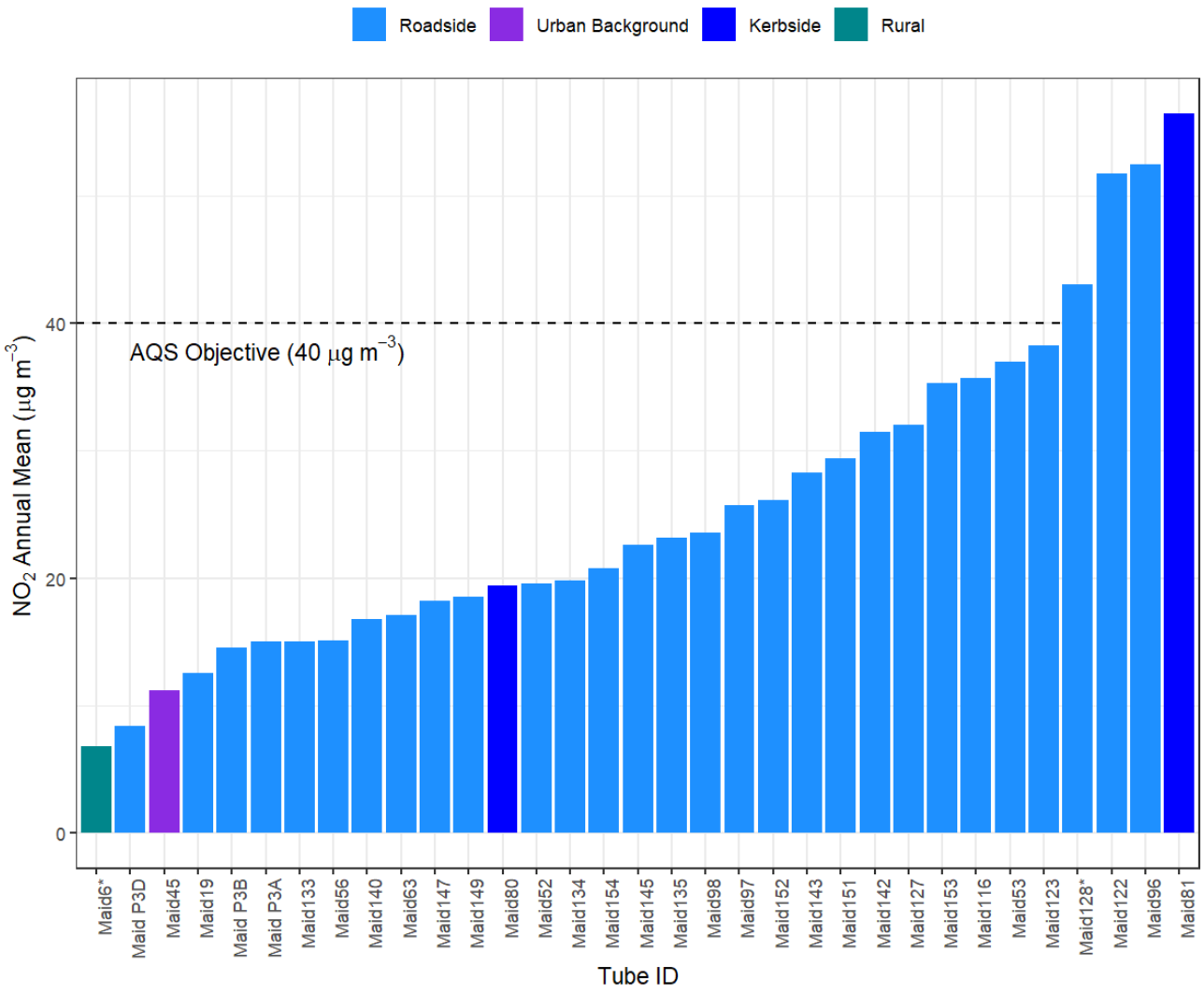
Figure 21: Gravesham Borough Council diffusion tube NO_2 annual means for 2024.



4.1.3.6 *Maidstone Borough Council*

In Maidstone, NO_2 annual mean concentrations were measured at 33 diffusion tube sites in 2024. Of these, 29 sites are classified as Roadside, 2 as Kerbside, 1 as Background and 1 as Rural. Four sites (Maid 81, Maid 96, Maid 122 and Maid 128) recorded annual mean NO_2 concentrations above the AQS objective in 2024. A further two sites were within 10% of the AQS objective (Maid53, and Maid123). The highest annual mean NO_2 concentration recorded was 56.5 μgm^{-3} recorded at the diffusion tube site at The Pilot Pub (Maid81).

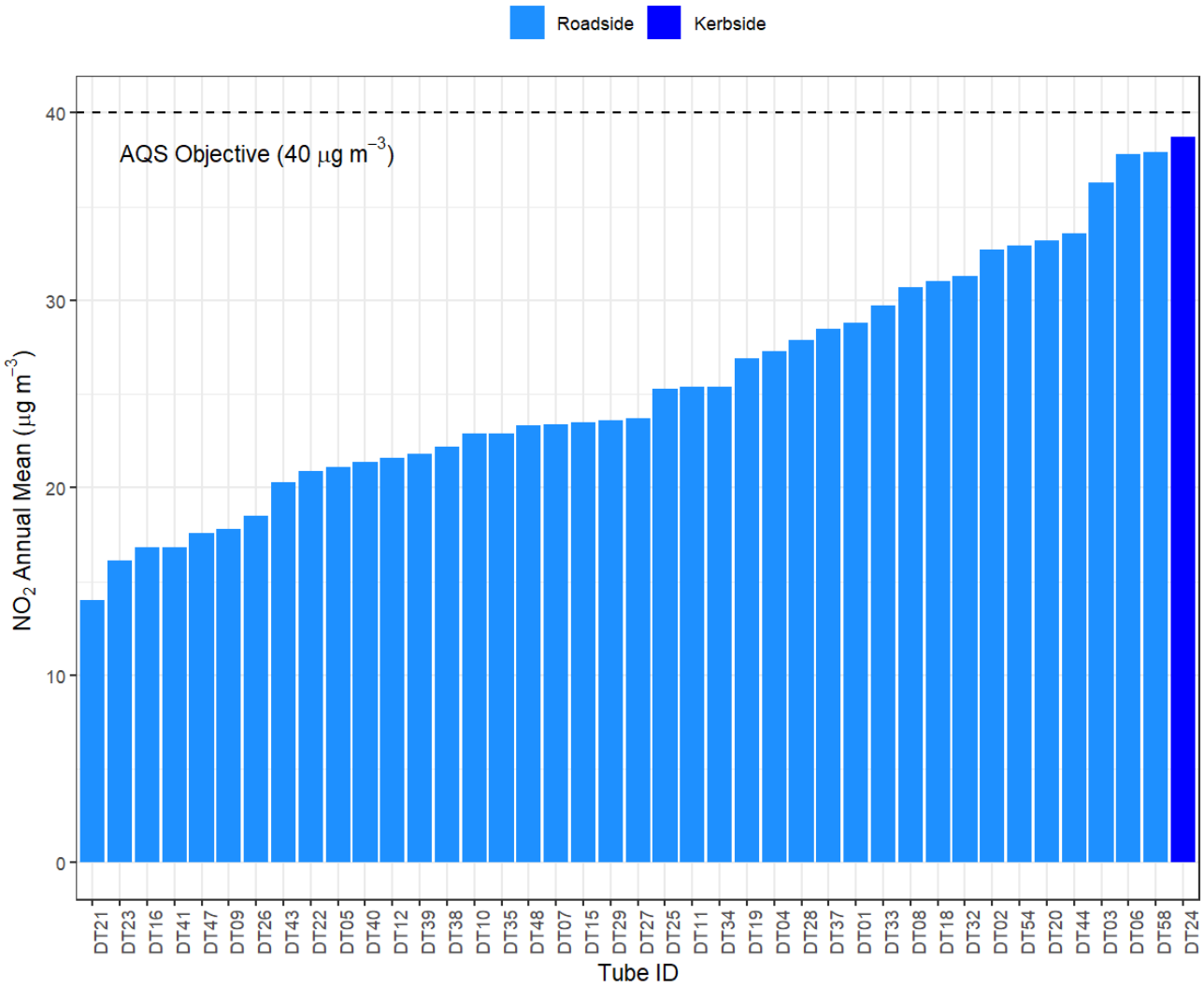
Figure 22: Maidstone District Council diffusion tube NO_2 annual means for 2024.



4.1.3.7 *Medway Council*

NO_2 annual mean concentrations were measured at 41 diffusion tube sites in 2024 by Medway Council. Of these, 40 sites are classified as Roadside and 1 as Kerbside. Annual mean concentrations at all sites were below the AQS objective in 2024. Four sites were within 10% of the AQS objective (DT03, DT06, DT24 and DT24). The highest annual mean recorded at a diffusion tube site was 38.7 μgm^{-3}, recorded at the site on 1A Main Road, Chattenden (DT24).

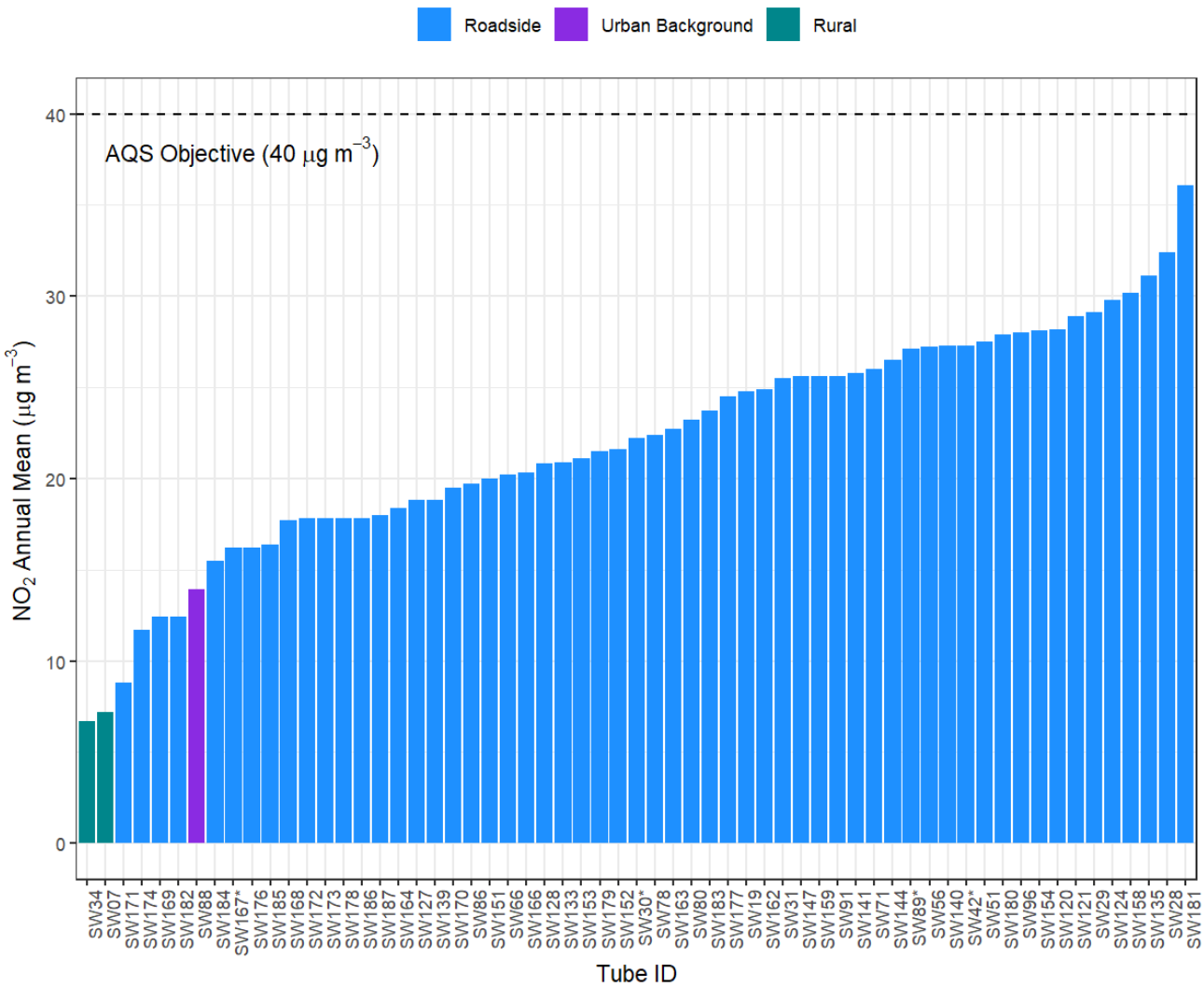
Figure 23: Medway Council diffusion tube NO_2 annual means for 2024.



4.1.3.8 *Swale Borough Council*

In Swale NO_2 annual mean concentrations were measured at 61 diffusion tube sites in 2024. Of these, 58 sites are classified as Roadside, 2 as Rural and 1 as Urban Background. Annual mean NO_2 concentrations at all sites were below the AQS objective in 2024. The highest annual mean NO_2 concentration was 36.1 μgm^{-3} recorded at a diffusion tube site located on Boughton Bypass, Hills Gate, Dunkirk (SW181) which is within 10% of the AQS objective.

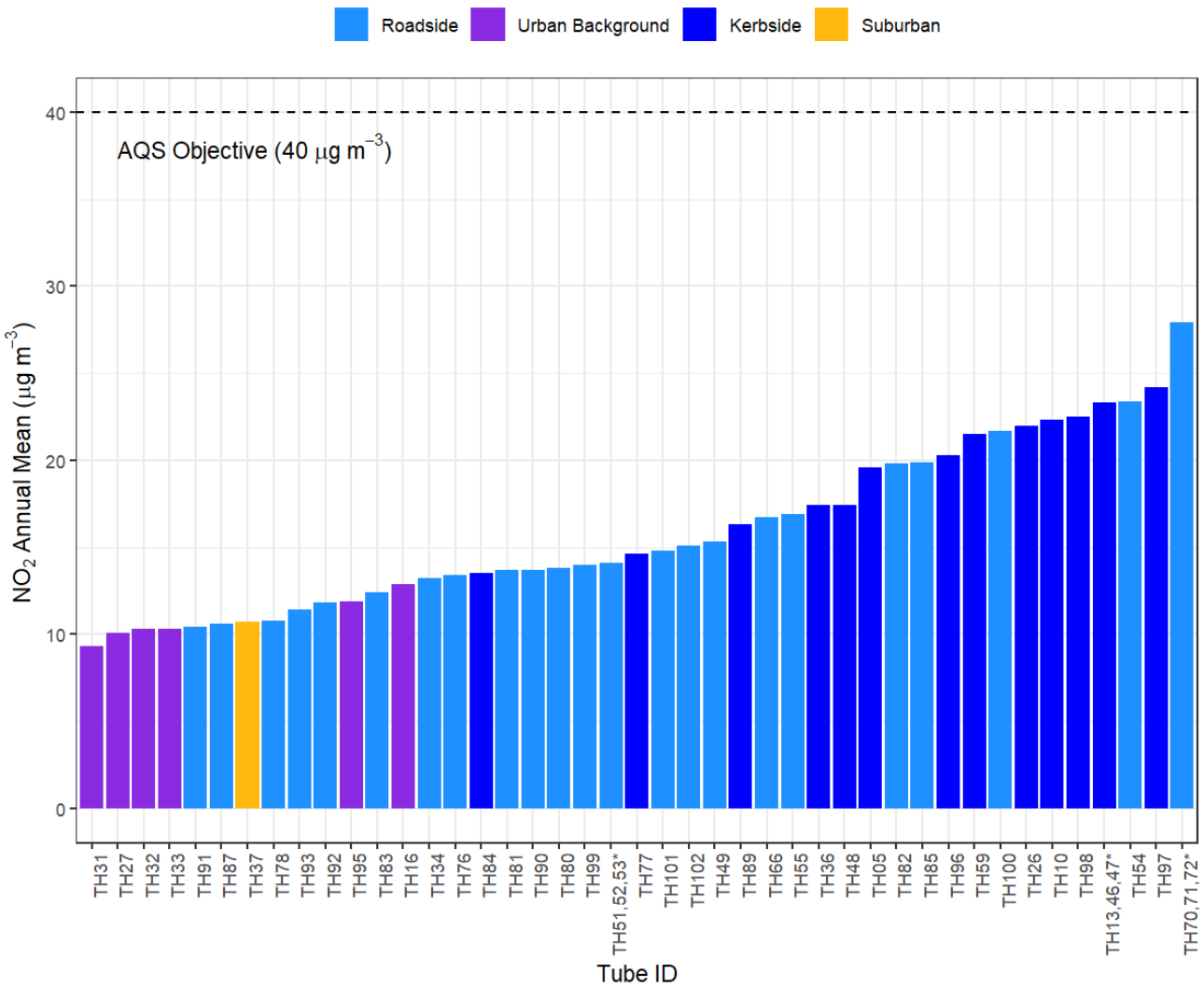
Figure 24: Swale District Council diffusion tube NO_2 annual means for 2024.



4.1.3.9 *Thanet District Council*

In Thanet, NO_2 annual mean concentrations were measured at 43 diffusion tube sites in 2024. Of these, 23 sites are classified as Roadside, 13 sites as Kerbside, 6 Urban Background and 1 as Suburban. Annual mean concentrations at all sites were below the AQS objective in 2024. The highest annual mean NO_2 concentration recorded was 27.9 μgm^{-3} recorded at the diffusion tube triplicate site located at 9 High Street, St Lawrence (TH70, TH71, TH72).

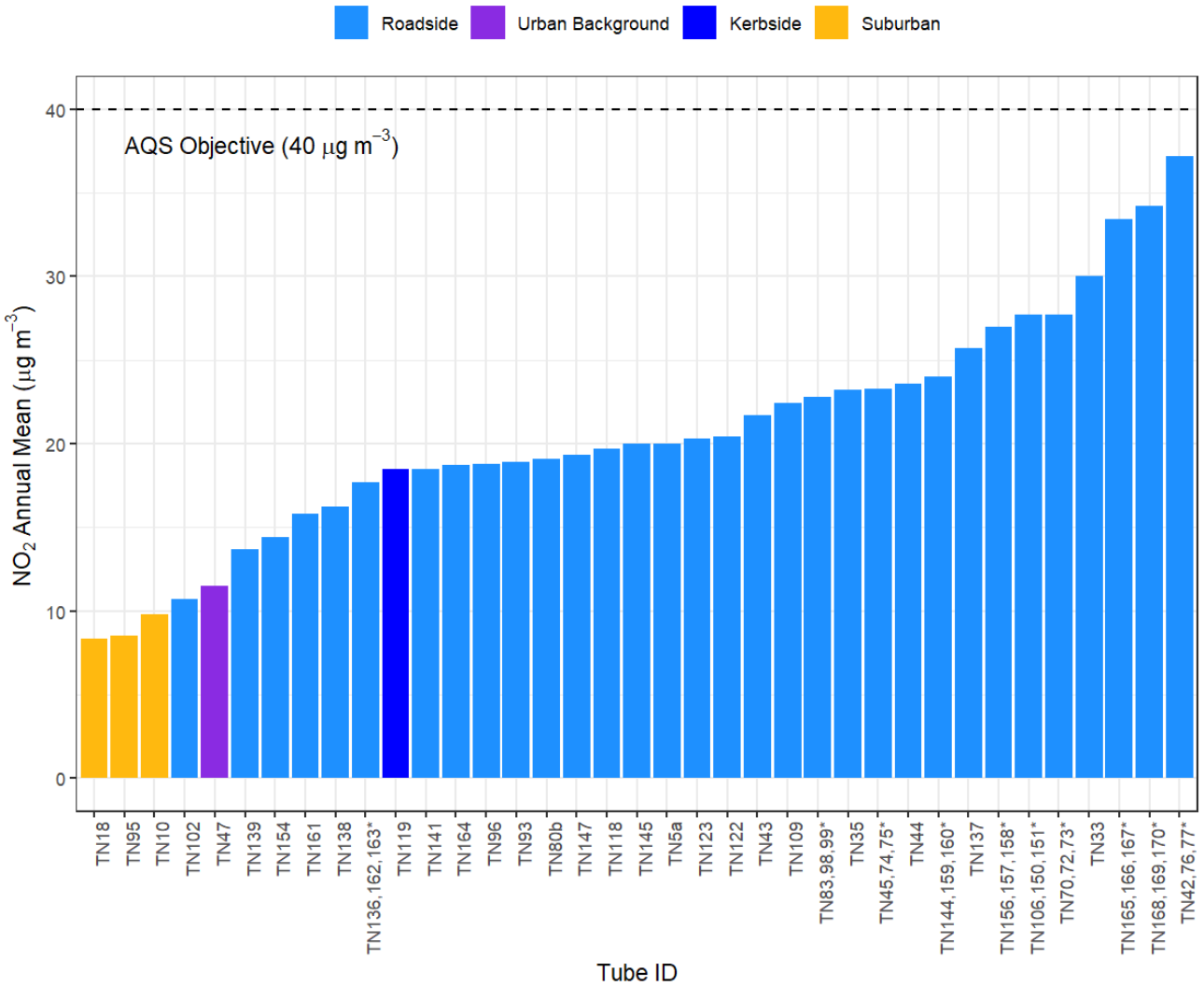
Figure 25: Thanet District Council diffusion tube NO_2 annual means for 2024.



4.1.3.10 *Tonbridge and Malling Borough Council*

In Tonbridge and Malling NO_2 annual mean concentrations were measured at 37 diffusion tube sites in 2024. Of these, 32 sites are classified as Roadside, 3 as Suburban, 1 as Urban Background and 1 as Kerbside. All sites recorded annual mean NO_2 concentrations below the AQS objective. The highest annual mean NO_2 concentration recorded was 37.2 μgm^{-3} recorded at the diffusion tube triplicate site located Tonbridge Road, Wateringbury (TN42, TN76, TN77).

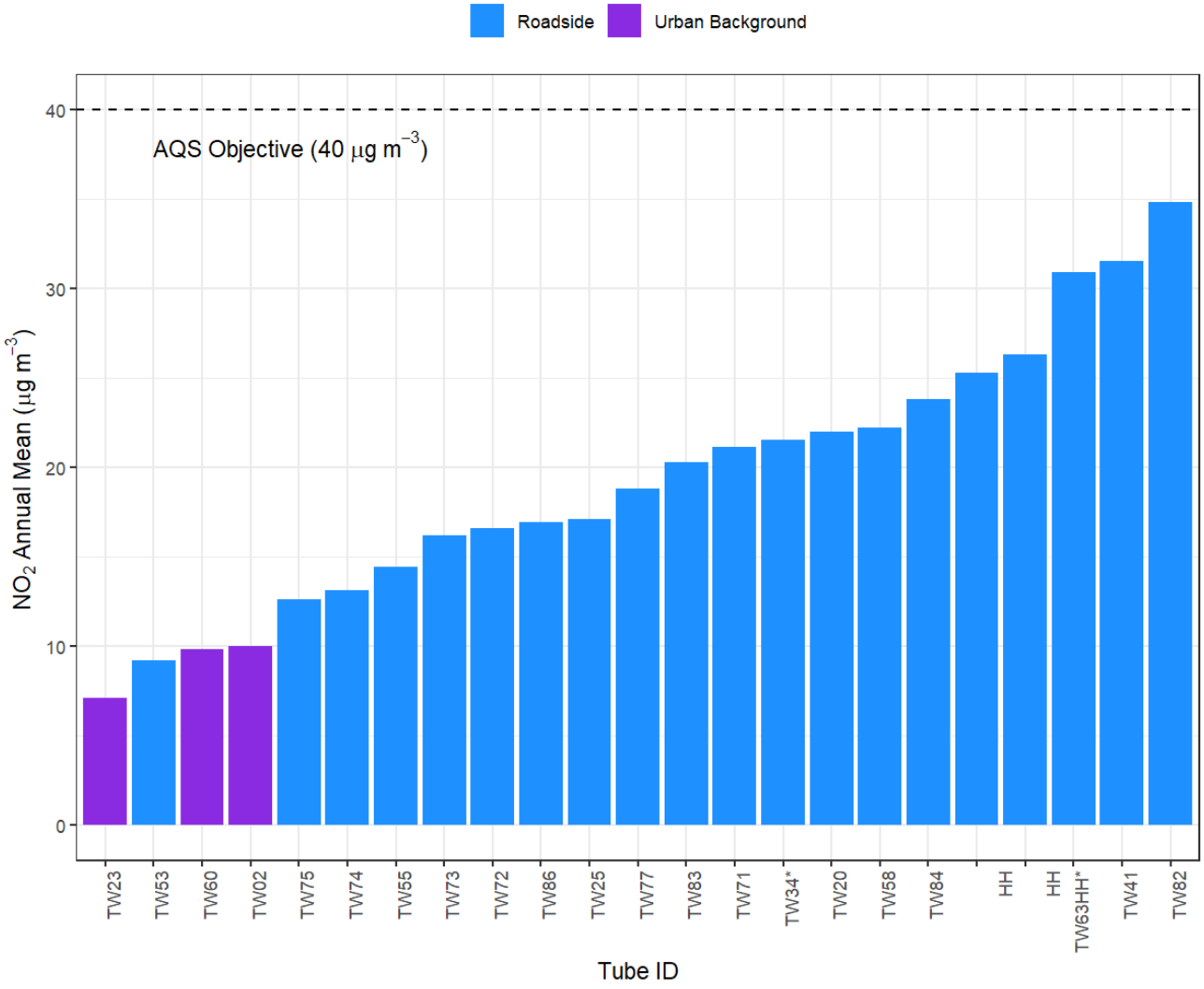
Figure 26: Tonbridge and Malling Borough Council diffusion tube NO_2 annual means for 2024.



4.1.3.11 *Tunbridge Wells Borough Council*

In Tunbridge Wells, NO_2 annual mean concentrations were measured at 23 diffusion tube sites in 2024. Of these, 20 sites are classified as Roadside and 3 as Urban Background. Annual mean concentrations at all sites were below the AQS objective in 2024. The highest annual mean NO_2 concentration was 34.8 μgm^{-3} recorded at a diffusion tube site located on Dorin Court, Bayhall Hill (TW41).

Figure 27: Tunbridge Wells Borough Council diffusion tube NO_2 annual means for 2024.



5. LOCAL AUTHORITY ACTIONS TO IMPROVE AIR QUALITY

In this section a summary of the air quality actions in progress or planned for the future are provided for each borough/district. Further details on local authority actions can be found in the individual Annual Status Reports (ASRs) published on the KentAir website here: https://kentair.org.uk/reports.

Ashford Borough Council

Ashford Borough Council undertook passive NO_2 monitoring at 25 diffusion tube sites in 2024. There are no automatic monitoring sites in the Borough. All sites recorded annual mean NO_2 concentration below the AQS objective. As such there are no AQMAs declared in the Borough.

Ashford Borough Council have continued to work to improve air quality, with the following measures in 2024:

- Implementation of electric vehicle charging points. In 2023, the Ashford EV charging points network contained 69 charging points.
- Conducted usage study for the installed electric vehicle charging points.
- Continuation of the Green Taxi Scheme to encourage electric and hybrid taxis.
- Published their Local Air Quality Strategy in line with LAQM PG.22 guidance.
- Implemented the Handlebars vs cars campaign, encouraging cycling as a commuter option alongside recreation.
- Implemented measures outlined in the Climate Action Plan 2022-2024 including facilitating a borough wide reduction in transport related emissions.

For 2025 priorities include:

- Work in conjunction with AURN to install a $PM_{2.5}$ urban background monitoring site. This is in the early stages of development and should be in operation at some point in 2026.
- Assess vehicle fleet efficiency through the number of ultra-low emission vehicles within the vehicle fleet.
- Explore options to provide fuel efficient driver training for taxi and private hire drivers to reduce vehicle emissions.
- Planning of installation of 26 new electric vehicle charging points by 2026.

Canterbury City Council

Canterbury City Council monitored NO_2, PM_{10} and $PM_{2.5}$ at one automatic monitoring site and NO_2 concentrations at a second automatic monitoring site. Both automatic monitoring sites were in compliance with AQS objectives in 2024 for all pollutants. Annual NO_2 concentrations were also monitored at 33 diffusion tubes sites in 2024. All diffusion tubes met the annual AQS objective in 2024. There are currently two AQMAs declared for NO_2 in the district.

The following projects to improve air quality have been delivered by Canterbury City Council in 2024:

- Worked with Kent County Council to deliver broadband to 140,000 homes and businesses across Kent with 95% of properties now having access to superfast broadband to facilitate more opportunities for home working.
- Promoted information on sustainable fuels that can be burnt.
- Introduced the Events Implementation Strategy which restricts use of solid fuel, petrol and diesel generators at events held on council land
- Adopted the Kent and Medway Energy and Low Emission Strategy and implementing the strategy as part of the AQAP actions.

- Completed works to subways, cycle paths and streets as part of active travel plans to make walking and cycling links in the city more appealing
- Introduced a new policy requiring all taxi and private hire vehicles to be Euro 6 compliant unless wheelchair accessible.
- All new taxis and private hire vehicles are required to be Ultra-Low Emission Vehicle (ULEV) compliant by August 2026 and all new vehicle classes to be Battery Electric Vehicles (BEVs) by April 2030.
- Incentives have been introduced to help, with a discount on taxi licence fees and a free overnight parking permit of £100 per annum
- Continued enforcement of industrial pollution control and nuisance legislation within the district
- Completed statutory inspections with all processes are compliant

The following measures are expected to be implemented in 2025:

- Support the improvement in broadband infrastructure across the district to enable more home working and reduce vehicle movement into Canterbury.
- Implement the Wincheap road scheme, with the aim of easing rush-hour gridlock.
- Explore opportunities to enhance sustainable transport through the Canterbury District Transport Strategy.

Dover District Council

The District of Dover has one automatic monitoring site for PM_{10} concentrations, and annual mean NO_2 concentrations were recorded at 21 diffusion tube sites in 2024. Measured annual mean concentrations at all sites were below the AQS objectives. There is currently one AQMA declared for NO_2 in the District of Dover.

Dover District Council have implemented the following measures in 2024:

- Adopted the new Dover District Local Plan.
- Revoked A20 AQMA, as of 1st April 2025.
- Adopted the new Air Quality Action Plan.

Priorities for 2025 are as follows:

- Encourage Council Travel Plan opportunities and seek to facilitate uptake of sustainable modes of transport.
- Work together with developers to improve sustainable transport links serving new developments.
- Revocation of High Street/Ladywell AQMA
- Work with Kent County Council to improve public transport services and encourage the use of more sustainable transport modes
- Procure low emission vehicles for the LGV and HGV fleet, council-owned fleets and refuse fleet.
- Work with KMAQP on promotional activities to raise the profile of air quality in Dover

Folkstone and Hythe District Council

NO_2 monitoring was undertaken at 18 diffusion tube sites in Folkstone and Hythe in 2024. Annual mean concentrations at all sites were below the AQS objective. There are no declared AQMAs in Folkstone and Hythe.

Key priorities for Folkstone and Hythe District Council for 2025 include:

- Continue to use the passive monitoring network to monitor air quality within the district and ensure compliance is maintained with the annual and 1-Hour NO_2 objectives into 2025 and onwards.

Gravesham Borough Council

Gravesham Borough Council monitor NO_2 and PM_{10} at two automatic monitoring sites and NO_2 at 65 diffusion tube sites. Both NO_2 and PM_{10} at automatic monitoring sites were in compliance with AQS objectives in 2024. All diffusion tube sites recorded annual mean NO_2 concentrations below the AQS objective. There are currently three AQMAs declared in the Borough.

Gravesham Borough Council have implemented the following measures in 2024:

- Adopted the new 2024 – 2029 AQAP
- Successfully carried out campaigns to raise awareness of the impact of the burning of waste and the emissions of smoke from chimneys

The main priorities for Gravesham Borough Council in 2025 are:

- Reviewing the Council's own Travel Plan.
- Starting the revocation process for AQMA No.1 (Gravesham A2) and No.4 (Gravesham A227 Wrotham Road/ B261 Old Road West).

Maidstone Borough Council

In 2024 Maidstone Borough Council undertook NO_2 and PM_{10} monitoring at two automatic sites. One of the automatic sites also monitored $PM_{2.5}$. The annual NO_2 AQS objective was exceeded at one automatic monitoring site. There were also 32 diffusion tube sites for monitoring NO_2. Four of the diffusion tube sites recorded annual mean NO_2 concentrations above the AQS objective in 2024. A further two sites recorded an annual mean within 10% of the objective. Maidstone has one AQMA declared for NO_2.

Maidstone Borough Council have implemented a number of measures to improve air quality in 2024, these include:

- Extended the Clean Air for Schools programme, with emphasis on the roll-out of the Pollution Patrol resource.
- Promoted Pollution Patrol campaign.
- Initiated development and subsequent launch of the Clean Air Academy platform.
- Provide an information campaign to residents of the new AQMA.
- Prioritised the AQMA and surrounding areas for roll out of new DEFRA funded Health Professionals AQ resource, now known as Clean Air Academy.
- A campaign of anti-idling signage across the Borough, focussing on schools and other known or identified problem areas

The priorities of Maidstone Borough council for 2025 are:

- Remodelling of the current AQMA to assess whether how many receptors are still not compliant with the NO_2 annual mean objective, and, if possible, to assess when full compliance will occur.
- Carry out source apportionment for $PM_{2.5}$ in the Borough as a whole.
- Review NO_2 levels in the Borough in order to assess how ready we might be for a potential change in the NO_2 annual mean in line with the new EU objective of 20μgm^{-3} expected to come into effect in 2030, and with the Council's longer term ambition to meet WHO AQ objectives in the future.

Medway Council

Medway Council undertook automatic continuous monitoring at two sites and diffusion tube monitoring of NO_2 at 41 sites during 2024. Measured NO_2 concentrations at the automatic monitoring sites were in compliance with the AQS objectives. All diffusion tubes recorded an annual mean below then AQS objective in 2024. Four diffusion tube sites recorded NO_2 concentrations within 10% of the annual objective. Medway currently has four AQMAs declared for NO_2.

To improve air quality, Medway council has implemented the following measures in 2024:

- Completed a taxi and private hire ULEV feasibility study.
- Worked with Kent County Council to review the Regional Freight Strategy.
- Development of an air quality communications strategy with public relations team
- Setting up of AQAP Steering Group and book 6 monthly meetings with stakeholders.

In 2025, the main priorities of Medway council will be:

- Progressing the three projects funded by the air quality grants.
- Progressing with the measured outlined in the 2022 Four Elms Hill AQAP.
- Completing the ongoing review of the 2015 AQAP.
- Seeking to revoke the Pier Road Gillingham AQMA given the ongoing compliance with national Air Quality Objectives within the designated AQMA as proven with monitoring results.

Swale Borough Council

Swale Borough Council has three automatic monitoring stations in operation. All stations measured NO_2 and PM_{10} and two sites measured $PM_{2.5}$ in 2024. NO_2 concentrations at the three automatic monitoring sites met their AQS objectives in 2024. There were no exceedances of the PM_{10} annual mean, however there were 85 exceedances of the 24-hour mean limit of 50 μgm^{-3} (which is not to be exceeded more than 35 times per year) at one site. $PM_{2.5}$ was below the annual mean objective at both sites. In addition, Swale monitored NO_2 at 61 diffusion tube sites. All diffusion tube locations recorded an annual mean NO_2 concentration below the AQS objective. One location recorded an annual mean within 10% of the objective. Swale currently has six AQMAs declared, five of these are for NO_2 and one is for NO_2 and PM_{10} combined.

Swale Borough Council have been working to improve air quality, including:

- Initiated development and subsequent launch of the Clean Air Academy platform.
- Commenced the Sittingbourne & Iwade Active Travel Connectivity Feasibility Study.
- Promoted Pollution Patrol campaign.
- Continued implementation of anti-idling campaign, with additional enforcement patrols enforced in hotspot locations.
- Continued promotion and raising awareness of KentAir alert messaging, air quality impacts and solutions through KentAir week, Clean Air Day and the Green Schools Forum.
- Undertook real-time monitoring using a Praxis Cube sensor in Teynham AQMA.
- Preparation of mitigation measures through the Dust Management Project to maximise remedial and the reduction of PM10 exceedances at St Pauls Street (AQMA 4).

For 2025, priorities include:

- Continue anti-idling patrols and raising awareness of the anti-idling campaign in hotspot locations.
- Local Cycling and Walking Infrastructure Plans.
- Complete dust management project to reduce particulates at St Paul's Street AQMA – deep clean scheduled for April 2025.

- Continue to liaise with Medway Council to discuss transboundary impacts and mitigation options. Working towards lowering NO_2 emissions in Newington and Keycol Hill AQMAs.
- Promote and further distribute 'Clean Air Academy' to health care practitioners with support from KCC public health and NHS communication teams to raise awareness of air quality information.
- Engage with members to consider next steps in lobbying role to improve bus infrastructure and service.

Thanet District Council

Thanet District Council undertook automatic monitoring of NO_2 and PM_{10} at two sites during 2024. Monitoring of NO_2 was also undertaken at 43 diffusion tube sites. There were no exceedances of the annual mean NO_2 AQS objective at any of the automatic or diffusion tubes sites. Measured PM_{10} concentrations also complied with AQS objectives. Thanet currently has no declared AQMA for NO_2.

Thanet District Council has successfully implemented the following measures in 2024:

- Revocation of the Ramsgate AQMA.
- Assisting Kent and Medway Air Quality Partnership (KMAQP) funding the development of a resource for Air Pollution Training for healthcare professionals.
- Pollution Patrol school resource to educate children on air pollution and the impact on health.
- The Kent and Medway Energy and Low Emission Strategy has been adopted and a travel plan monitoring officer appointed at Kent County Council.
- Formal adoption of TDC Net Zero Action Plan 2024 and Strategy.
- Completion of Thanet Air Quality Technical Planning Guidance for inclusion with the new AQS.
- Parking strategy to promote active and sustainable transport, to prioritise measures that deliver clean air (December 2024).
- Implementation of the Clean Air Schools campaign.
- Adoption of Anti Idling Powers (Jun 2024) to enable effective campaigning and enforcement in area of poor air quality.
- Progressing the Taxi Licensing Policy, which is currently being updated. This will include incentives for ULEV and age restrictions of the existing fleet. For new licences, taxis must be Euro 6 vehicles, i.e. <7 years.
- Progressing the social media campaign on air quality.

The District Council's priorities for 2025 are:

- Continue to engage with land-use and transport planners to ensure the actions adhere to the Local Plan and are supported by all parts of the authority.
- Continue to raise awareness of air quality issues within the District.
- Continue to work with Kent County Council to undertake identified feasibility studies of measures to tackle air pollution, to determine more robustly the effectiveness and cost of options.
- Encourage the public to use sustainable transportation, including public transport, car sharing, cycling, and walking.
- Continue the partnership with Kent County Council to engage in a joint approach to tackle air quality issues and the implementation of the Thanet Transport Strategy.
- To progress KMAQP proposal for Air Pollution Training for healthcare professionals - to raise awareness and increase the confidence and skills of health care professionals to address air pollution in their day-to-day practice.
- Continue to work with Sustrans to support development plans to connect rural areas.
- Continue the anti-idling powers to enable effective campaigning and enforcement in areas of poor air quality.

Tonbridge and Malling Borough Council

Tonbridge & Malling Borough Council undertook automatic monitoring of at two sites during 2024. One site measured NO_2 only, and the other site measured both NO_2 and PM_{10}. The council also undertook passive monitoring of NO_2 at 37 diffusion tube sites in 2024. Both automatic monitoring sites showed compliance with AQS objectives for NO_2 and PM_{10}. All diffusion tube sites recorded annual mean NO_2 concentrations below the AQS objective. Tonbridge & Malling Borough Council have declared five AQMAs, all for NO_2.

Key measures completed by Tonbridge and Malling Borough Council include:

- Completion of phase 2 of EV charging

Tonbridge & Malling Borough Council expects the following measures to be completed in 2025:

- Explore the process for possible standardising Section 106 agreement funding from development for AQ improvements.
- Roll out phase 2 of the anti-idling campaign with further signage around more schools and other idling hot spots such as taxi ranks and junctions.
- Continue engagement with schools on Air Pollution and simple steps to help tackle it.
- Make progress in establishing a Car Club in the Borough.
- Revoking at least 3 and possibly another of the 5 remaining AQMA's for NO_2. AQMA 4 at Wateringbury will remain in place as its still within 10% of the current NO2 limit.

Tunbridge Wells Borough Council

Tunbridge Wells Borough Council undertook automatic monitoring of NO_2, PM_{10} and $PM_{2.5}$ at one site and passive monitoring of NO_2 at 23 diffusion tube sites, during 2024. NO_2, PM_{10} and $PM_{2.5}$ measured at the automatic monitoring site met their AQS objectives in 2024. All diffusion tube sites recorded an annual mean below the AQS objective. Tunbridge Wells Borough Council currently has one AQMAs declared for NO_2.

Key measures completed by Tunbridge Wells Borough Council to improve air quality in 2024 include:

- Examination of the emerging Borough Local Plan covering 2020 to 2038.

Priorities for Tunbridge Wells Borough council in 2025 include:

- Completion of the Hawkhurst Crossroads Improvements.
- Installation of AQMA signage to inform motorists they are entering the Hawkhurst AQMA.
- Improve air quality mitigation of businesses in Gill's Green.
- Secure a commercial sponsor for the Pollution Patrol resources to secure the long-term availability, sustainability and further promote the resource post-DEFRA funding.
- To continue to develop the Clean Air Academy Health Care Practitioners resource, which forms the basis of our latest DEFRA project.