Bath & North East Somerset Council

Improving People's Lives

Appendix E

Provisional 2024 Air Quality Monitoring Report

Lower Lansdown and The Circus Liveable Neighbourhood

Jan 2023-June 2025

Baseline monitoring:

- January 2023 – December 2023 (Annual)
- January 2024 - October 2024 (Q1, Q2 and Q3)

In-trial monitoring:

- November 2024 – June 2025 (Q1 and Q2)

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Background information

This report provides a comparison of the baseline air quality data (January 2023 to October 2024) with provisional data from November 2024 - July 2025 for the Lower Lansdown and The Circus Liveable Neighbourhood (LN) scheme. The purpose is to assess the potential impact of three linked through-traffic restriction trials in the Winifred's Lane, Gay Street, Circus and Catharine Place areas in Lower Lansdown (as described at www.bathnes.gov.uk/lansdownetro).

Please note that both the 2024 and 2025 data is provisional until a peer review is performed and published. The 2024 data is due to be confirmed and published in late Summer 2025.

Air pollution

Air pollution is the leading environmental health risk to the UK public, with an estimated 29,000 to 43,000 deaths annually attributed to it in the UK alone[1].

Long-term exposure to air pollution is linked to premature death associated with lung, heart and circulatory conditions, while short-term exposure exacerbates asthma and increases hospital admissions.

There is evidence to suggest that despite strengthening environmental policies, the poorest in our society are being unfairly exposed to worse air pollution without seeing improvements[2]. Clean air is important for everyone and will alleviate stress on our health system, improve people's lives and make our society more equitable.

Types and causes of air pollution

There are different causes and sources of air pollution. Historically, combustion of fossil fuels for energy, such as coal, produced smoke and sulphur dioxide (SO_2).

Now road traffic is chiefly responsible for the poor air quality in the UK contributing to nitrogen dioxide (NO_2) pollution and particulate matter (PM) pollution.

Particulate matter pollution, referred to as PM_{10} (particulate matter less than 10 µm in diameter) or $PM_{2.5}$ (particulate matter less than 2.5 µm in diameter), is made up of tiny bits of material from all sorts of places including smoke from fires, exhaust fumes, smoking or the dust from brake pads on vehicles. These particles are too small to see, and we breathe them in without noticing.

NO_2 comes from burning fuels or other materials, so levels are especially high around roads. But they are also produced from home gas boilers, bonfires, and other sources as well. You cannot see or smell nitrogen oxides, but they mix with the air we breathe and are absorbed into our bodies. Vehicle exhaust emissions contribute

[1] UK Health Security Agency. Chemical Hazards and Poisons Report, Issue 28, 2022.
[2] Air Quality Management Resource Centre, UWE. Emissions vs exposure: Increasing injustice from road traffic-related air pollution in the United Kingdom, 2019 https://www.sciencedirect.com/science/article/pii/S1361920919300392

35 per cent of all UK nitrogen oxide emissions (NOx) which is the single greatest source[3].

How does air pollution affect our health?

Air pollution particles and gases enter our bodies and can damage our cells in different ways. They usually travel into our lungs first, then from here move into our blood and vital organs such as our heart and brain.

Any amount of pollution can be damaging to our health, but the more that you are exposed to, the bigger the risk and the larger the effect on you and your family. Some people are more vulnerable to the impacts of air pollution than others. Those more at risk from air pollution include children, pregnant and older people; and people with lung conditions such as asthma, chronic obstructive pulmonary disease (COPD) and lung cancer, and people with heart conditions such as coronary artery disease, heart failure and high blood pressure.

Air pollution in Bath

Historically, nitrogen dioxide (NO_2) levels in Bath have been unacceptably high. However, since introducing Bath's clean air zone and through the natural replacement of polluting vehicles with cleaner ones over time, air quality is gradually improving and, in 2023, annual average NO_2 levels were below the legal limit of 40 µg/m^3 within the city. However, there are still areas of concern and two sites in Bath had annual average levels between 36-40 µg/m^3 which is mainly caused by vehicle emissions[4]. Both of these sites are located at Walcot Parade outside of the Lower Lansdown trial area.

The problem is exacerbated by Bath's topography. The city sits in the bottom of a valley surrounded by hills, and its central roads are flanked by tall buildings, which means that in certain conditions, vehicle emissions can get trapped in the atmosphere causing high levels of NO_2 in certain locations.

Particulate matter in Bath was not found to exceed legal limits for either PM_{10} or $PM_{2.5}$, except at times when there were meteorological or other events that caused spikes in these pollutants, nationally[4].

How we monitor air quality We have measured air quality in Bath and North East Somerset since the mid-1990s. Currently we measure NO_2, $PM_{2.5}$ and

[3] DEFRA. Air quality: explaining air pollution – at a glance, 2019. https://www.gov.uk/government/publications/air-quality-explaining-air-pollution/air-quality-explainingair-pollution-at-a-glance

[4] B&NES Air Quality Annual Status Report 2024 https://www.bathnes.gov.uk/sites/default/files/2024%20Annual%20Air%20Quality%20Report.pdf

PM_{10} concentrations in two ways: automatic analysers and diffusion tubes.

Automatic analysers measure NO_2 and PM in three permanent roadside locations in Bath. They take hourly readings of air pollution concentrations and provide more accurate readings than diffusion tubes. One of these monitoring stations is linked to the UK Automatic Urban and Rural Network (AURN) which provides national coverage of a range of pollutants.

Diffusion tubes are light, mobile and can be placed in many locations around the area, usually 1 to 15 metres from the road or at the kerbside (less than 1 metre from the road) and around 2-3 metres above ground level. The ambient air reacts with a chemical reagent in the tube so that NO_2 concentrations can be measured. The tubes are exposed to the air for one month before they are collected and sent to a laboratory for analysis. There are currently over 150 diffusion tube locations across Bath & North East Somerset including 22 key sites with higher levels of pollution where three diffusion tubes are located at each location to improve data confidence.

To find out more information about air quality across B&NES go to: https://www.bathnes.gov.uk/air-quality

As part of our obligations under the Local Air Quality Management (LAQM) legislation (part IV of Environment Act 1995 as amended by the Environment Act 2021) we have issued an Annual Status Report (ASR) alongside this report. These set out and comment on air quality data from across the wider authority. Current and historic reports can be found on our website: https://www.bathnes.gov.uk/document-and-policy-library/annual-air-quality-reports.

You can also view an interactive map of historical NO_2 data collected from monitoring locations around the area, here:

https://www.bathnes.gov.uk/nitrogen-dioxide-monitoring-data

How we monitor air quality for Liveable Neighbourhoods

As part of the Liveable Neighbourhoods (LN) project, additional monitoring has been carried out around the Lower Lansdown and The Circus LN area. Additional monitoring sites were placed on Sion Hill and Catharine Place in October 2023 in readiness for potential shortlisted trials, and on Sion Road and Winifred's Lane in May 2024 to supplement the existing monitoring in the area (See the blue triangles in Figure 1 and Figure 2). Full details of site locations can be found in the Air Quality Annual Status Report (https://www.bathnes.gov.uk/document-and-policy-library/annual-air-quality-reports).

Full details of the interventions at each point (marked as green diamonds on Figures 1 and 2 below) can be found on the LN website at https://www.bathnes.gov.uk/lansdownetro.

Figure 1: Air quality monitor locations near Gay Street and Catharine Place trials

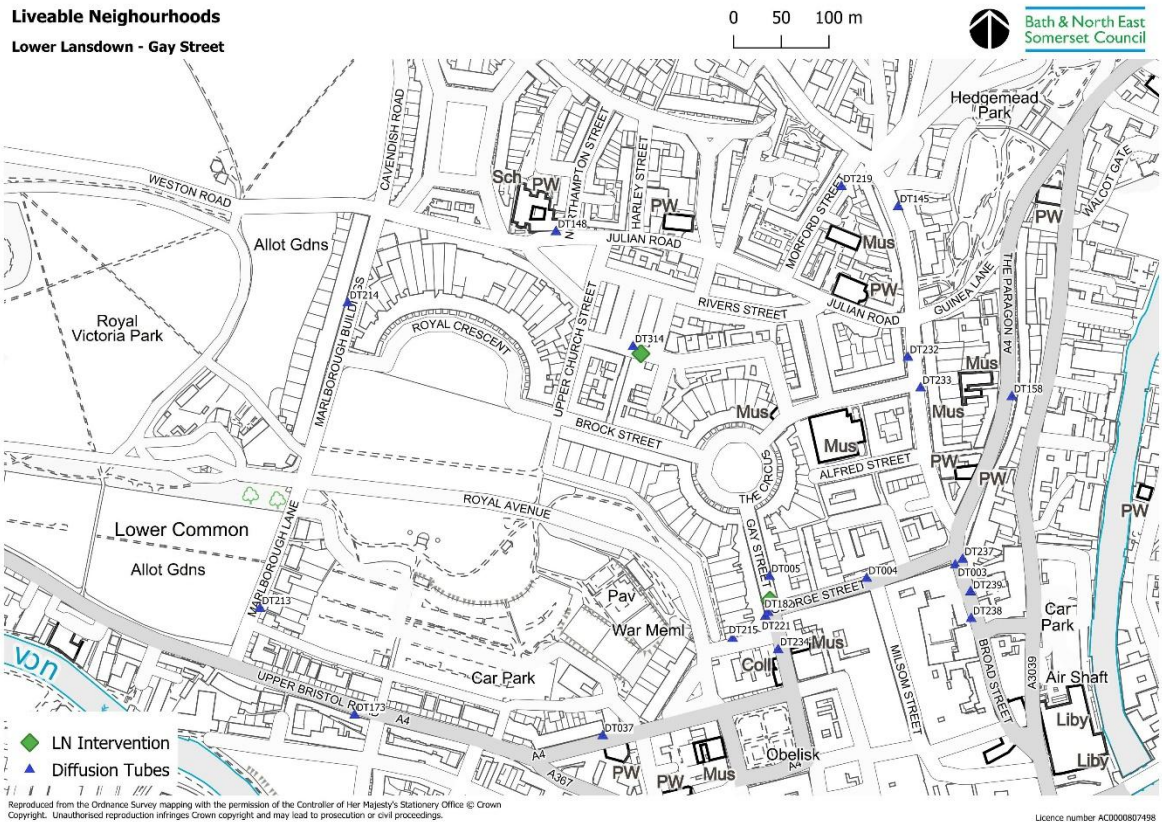
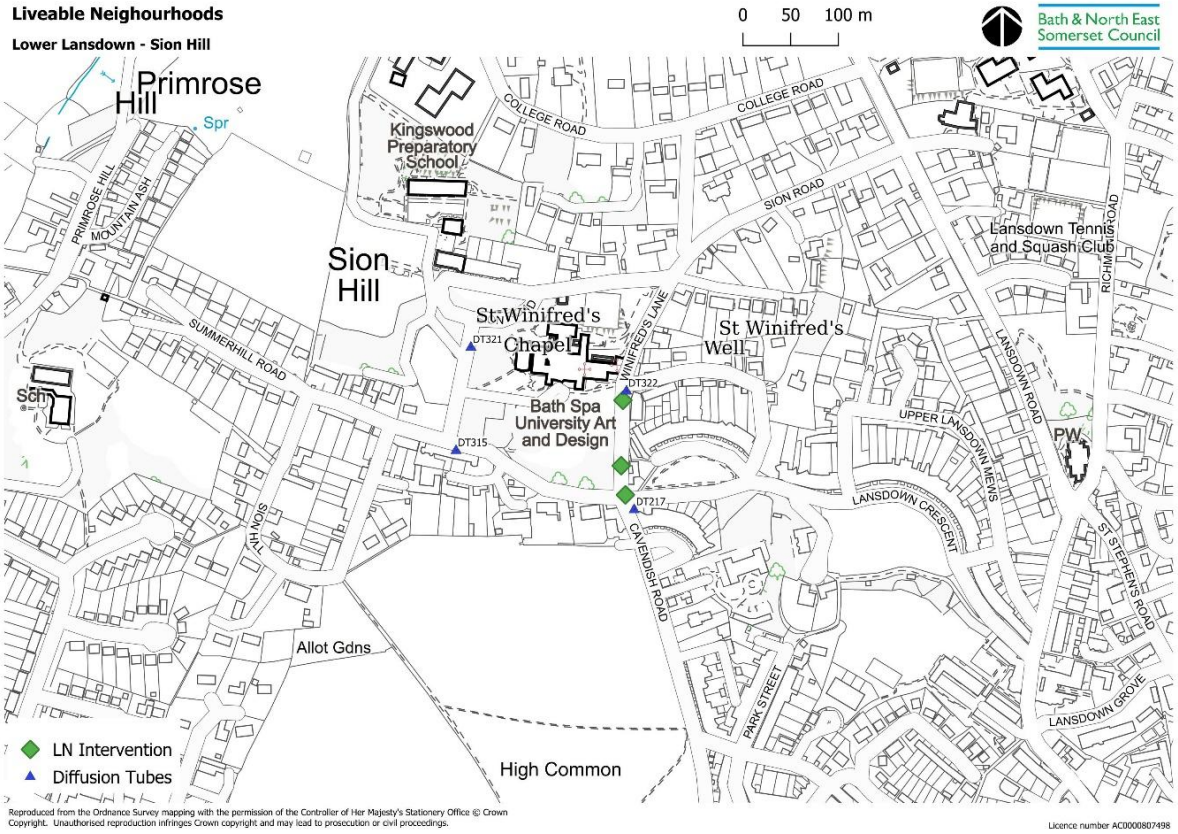


Figure 2: Air quality monitor locations near Winifred's Lane Trial



Data Analysis – Provisional Data

The data shown below is provisional and is currently being finalised. Final results will be available when the Annual Status Report has been peer reviewed.

To determine how air quality may have changed with the introduction of the trial, we compare the latest data collected since the start of the trial with baseline data from similar periods before its launch. And because we need to consider seasonal effects on air quality, we compare like-for-like data from previous years, breaking the year into quarters:

- Quarter 1 (Q1) – January, February, March
- Quarter 2 (Q2) – April, May, June
- Quarter 3 (Q3) – July, August, September
- Quarter 4 (Q4) – October, November, December

The primary focus of this report is the fourth quarter (Q4) of 2024 and the first and second quarter (Q1 & Q2) of 2025 as this covers the first 8 months of the trial. It should be noted that the three trials were fully installed fully by 7 November 2024, so quarter 4 includes 1 month pre-trial and 2 months in-trial data.

When reading the report please note the following:

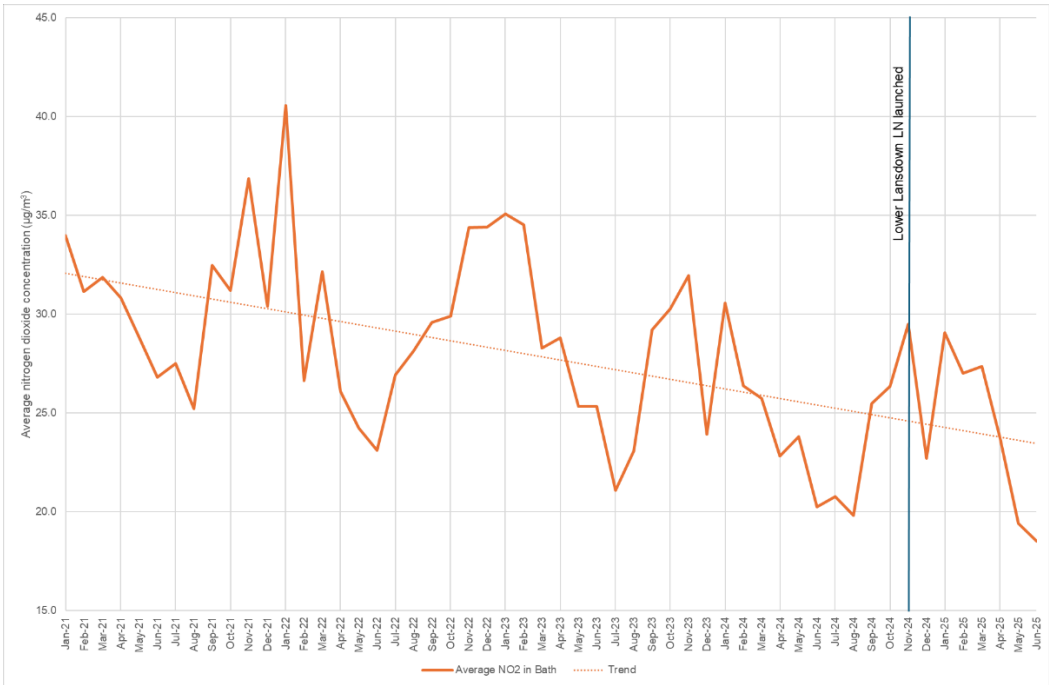
- 2024 and 2025 air quality data is provisional until our Annual Status Reports are peer reviewed.
- We compare baseline data (pre-trial) collected during 2023 and 2024 (Q1, 2 and 3) with in-trial data collected during 2024 (Q4) and 2025 (Q1, Q2) to inform how the trial may have impacted air quality.
- Air pollution is affected by the seasons.
- Quarterly results are not comparable to annual air quality objectives.
- The quarterly data has not been corrected for bias as this is always and only carried out at the end of each calendar year. Bias correction is made after comparison to monitoring data from an automatic monitoring site and the process is explained in the Annual Status Report https://www.bathnes.gov.uk/document-and-policy-library/annual-air-quality-reports).

It should be noted that there are several factors which can affect nitrogen dioxide concentrations. These include but are not limited to weather, local pollution sources and seasonality. Further information is needed to see the ongoing trends in this area. Monitoring will continue in the scheme area to ensure there are no ongoing adverse effects on air quality.

Air quality across Bath

It's useful to be able to compare results in the trial area to the wider area. **Figure 3** below shows the monthly average readings taken from 136 long-term monitoring diffusion tube sites in Bath between 2021 and 2025. Sites were only included if they were active for the whole period. The results (for the whole of Bath and the wider district) show a general downward trend, but results for February and March 2025 are slightly higher than the same months in 2024. This may be due to differences in weather conditions between the two years.

Figure 3: Trend in monthly average diffusion tube NO_2 concentrations in Bath from 2021 to 2024 (µg/m^3)

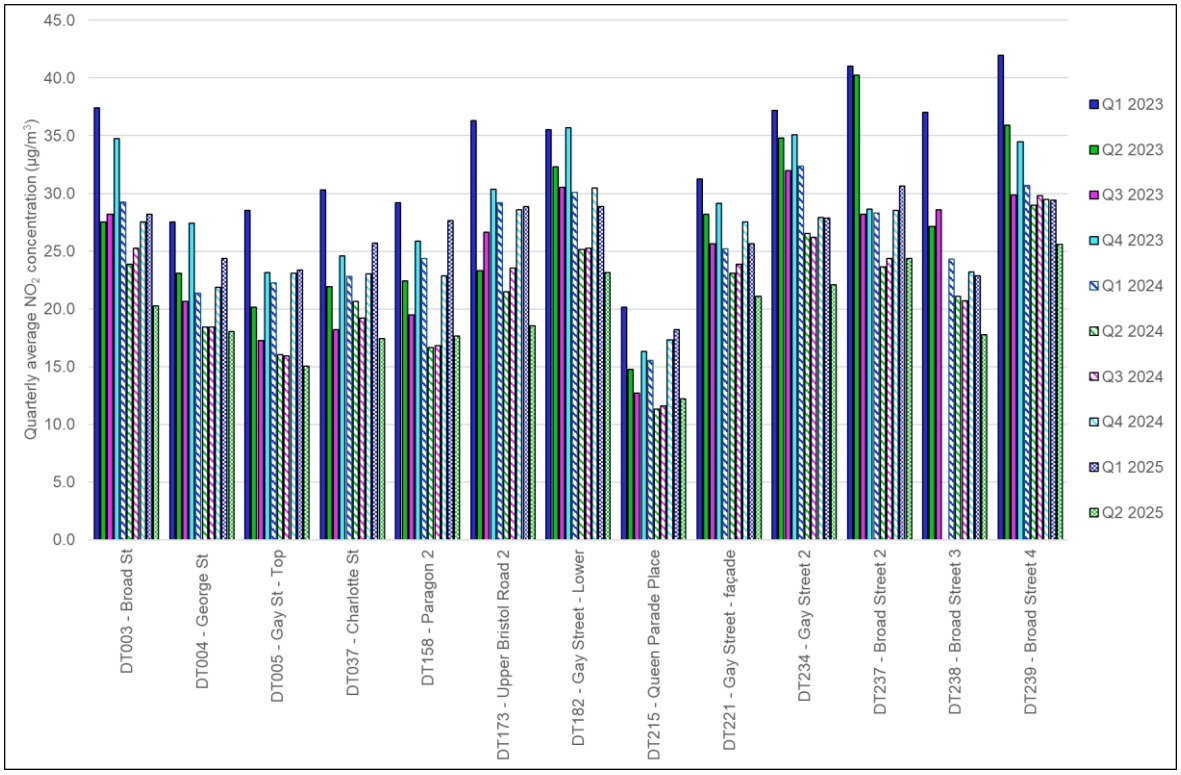


Quarterly Monitoring Results (Lower Lansdown ETRO Trial area)

The monitoring data from Q4 (2024), Q1 & Q2 (2025) from diffusion tubes located in the trial area and presented on maps in Figures 1 and 2, are compared with baseline monitoring data from 2023 and 2024 in **Figure 4 and 5 (bar chart) overleaf and in tabular form in Tables 1, 2 and 3.** Full quarterly data is available in Appendix 1.

Although the results for each quarter are not directly comparable with the annual average objective (because bias correction has not been applied and the data is not for the full year), **all the quarterly results show that the NO_2 concentrations at all locations in the trial area are below 40 µg/m^3 in 2024 and 2025.**

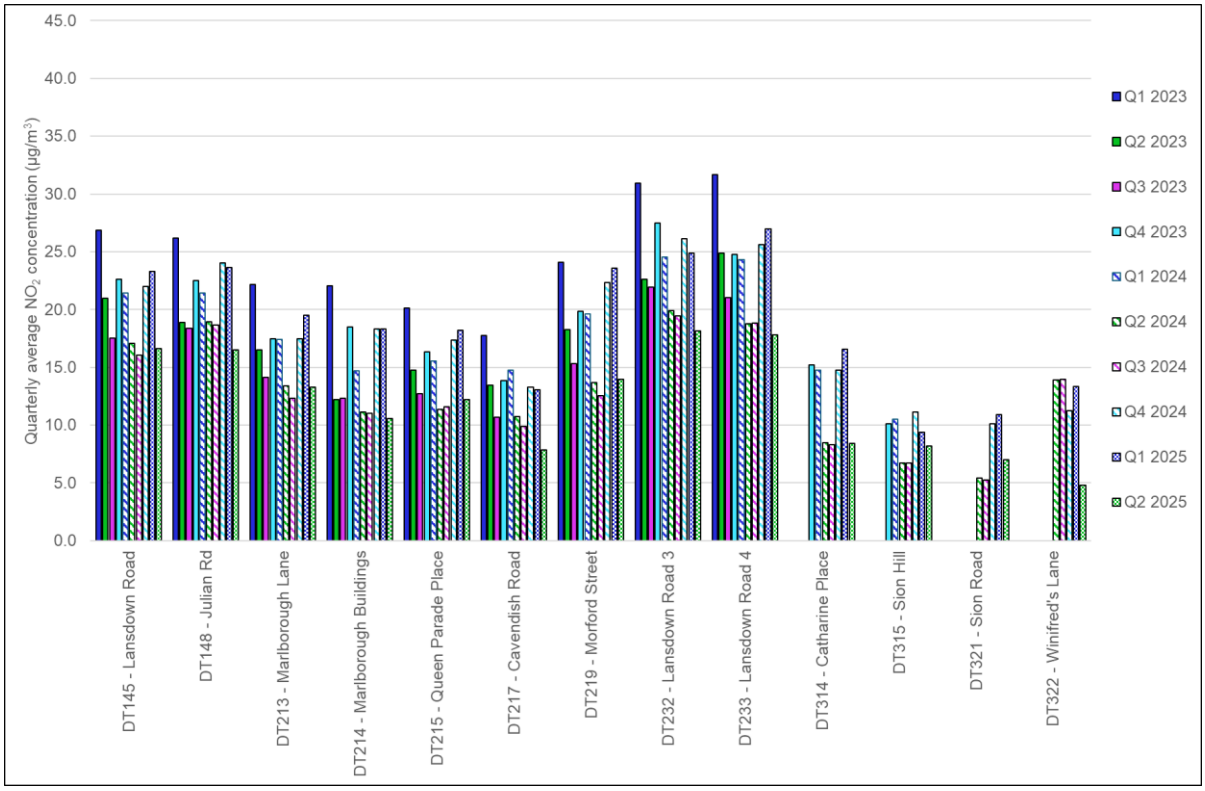
Figure 4: Provisional NO_2 Diffusion Tube Monitoring Results (µg/m^3)



Please Note:

- **DT238 on Broad Street** moved locations in January 2024 due to low data capture during 2023
- **DT005 Gay Street Top** is located further up **Gay Street North** where northbound cars are now restricted.
- **DT182 Gay Street Lower** is located **opposite the junction** of Gay Street and George Street on a lamppost close to the kerbside (close to the road)
- **DT221 Gay Street Façade** is located on a downpipe on a building's **façade at the junction** of Gay Street (west side) and George Street
- **DT234 Gay Street 2** is located on **Gay Street South** just south of Queens's Parade Place

Figure 5: Provisional NO_2 Diffusion Tube Monitoring Results (µg/m^3)



Please note:

- **DT145 Lansdown Road** is located south of the junction with Camden Crescent
- **DT232 Lansdown Road 3** is located between the junctions of Julian Road and Bennett Street
- **DT233 Lansdown Road 4** is located opposite the junction with Bennett Street
- **DT315 Sion Hill** is Sion Hill West at the junction with Sion Road
- **DT321 Sion Road** is located just north of the private one-way road exit from Kingswood School
- **DT217 Cavendish Road** is located at the top of the road just before the junction with Sion Hill East.

Table 1 – Comparison of Quarter 4 (2023 and 2024) Lower Lansdown provisional NO_2 Diffusion Tube Data (µg/m^3)

Site ID	Site NameSD	Q4 2023 (baseline)	Q4 2024 (in-trial)	Change (%)
DT003	Broad St	34.7	27.5	-20.7
DT004	George St	27.4	21.9	-20.2
DT005	Gay St – Top (Gay Street North)	23.1	23.1	0
DT037	Charlotte St	24.6	23.0	-6.3
DT145	Lansdown Road (south of Camden Cresent)	22.6	22.0	-2.8
DT148	Julian Rd	22.5	24.0	6.9
DT158	Paragon 2	25.9	22.9	-11.6
DT173	Upper Bristol Road 2	30.4	28.6	-6.0
DT182	Gay Street – Lower (junction with George St)	35.7	30.5	-14.6
DT213	Marlborough Lane	17.5	17.5	0
DT214	Marlborough Buildings	18.5	18.3	-1.0
DT215	Queens Parade Place	16.3	17.3	6.2
DT217	Cavendish Road (at junction with Sion Hill East)	13.9	13.3	-4.0
DT219	Morford Street	19.8	22.3	12.6
DT221	Gay Street – façade (junction with George St)	29.2	27.5	-5.7
DT232	Lansdown Road 3 (between junction of Julian Rd and Bennett St)	27.5	26.1	-4.9
DT233	Lansdown Road 4 (opposite junction with Bennett Street)	24.8	25.6	3.3
DT234	Gay Street 2 (Gay Street South)	35.1	27.9	-20.4
DT237	Broad Street 2	28.6	28.5	-0.4
DT238	Broad Street 3*	-	23.2	-
DT239	Broad Street 4	34.5	29.5	-14.4
DT314	Catharine Place	15.2	14.7	-3.0
DT315	Sion Hill (West) at the junction with Sion Rd	10.1	11.1	9.8
DT321	Sion Road* (north of the private one-way road exit)	-	10.1	-
DT322	Winifred's Lane*	-	11.2	-

*Data not available for Q4 2023

Observations: Table 1 presents a comparison of data in the trial area collected during Q4 in 2023 (baseline) and 2024 (in-trial from 7 November). The results show improvements in air quality at 20 of the 25 sites monitored in the area. Five sites where concentrations of NO_2 were higher than baseline were:

- **Julian Road** (22.5 to 25 µg/m^3)
- **Queens Parade Place** (16.3 to 17.3 µg/m3)
- **Morford Street** (19.8 to 22.3 µg/m3)

- **Lansdown Road 4** opposite junction with Bennett Street (24.8 to 25.6 µg/m^3)
- **Sion Hill** (west) near the junction with Sion Road (10.1 to 11.1 µg/m^3)

Continued overleaf.

Table 2 – Comparison of Q1 (2023, 2024 and 2025) provisional NO_2 diffusion tube data (µg/m3)

Site ID	Site Name	Q1 2023 (Baseline)	Q1 2024 (Baseline)	Q1 2025 (In-trial)	Change (%) 2023-25	Change (%) 2024-25
DT003	Broad St	37.4	29.3	28.2	-24.6	-3.7
DT004	George St	27.5	21.3	24.3	-11.5	14.0
DT005	Gay St – Top (Gay St North)	28.5	22.3	23.4	-18.1	4.8
DT037	Charlotte St	30.3	22.8	25.7	-15.4	12.5
DT145	Lansdown Road (south of Camden Crescent)	26.9	21.4	23.3	-13.3	8.8
DT148	Julian Rd	26.2	21.4	23.7	-19.5	10.5
DT158	Paragon 2	29.2	24.4	27.7	-5.2	13.5
DT173	Upper Bristol Road 2	36.3	29.2	28.8	-20.6	-1.3
DT182	Gay Street – Lower (opp. George St junction)	35.5	30.1	28.8	-18.9	-4.2
DT213	Marlborough Lane	22.1	17.4	19.5	-11.9	11.9
DT214	Marlborough Buildings	22.1	14.7	18.3	-16.9	24.5
DT215	Queens Parade Place	20.1	15.5	18.2	-9.5	17.2
DT217	Cavendish Road (top at junction w/ Sion Hill East)	17.8	14.8	13.1	-26.5	-11.5
DT219	Morford Street	24.1	19.6	23.6	-2.1	20.2
DT221	Gay Street – façade (opp junction w/ George St)	31.3	25.2	25.7	-17.9	1.8
DT232	Lansdown Road 3 (between Julian Rd and Bennett St junctions)	30.9	24.5	24.9	-19.5	1.5
DT233	Lansdown Road 4 (opp junction with Bennett Street)	31.7	24.3	27.0	-14.8	10.9
DT234	Gay Street 2 (south of Queens's Parade Pl)	37.2	32.3	27.9	-25.1	-13.8
DT237	Broad Street 2	41.0	28.3	30.6	-25.4	8.2
DT238	Broad Street 3	37.0	24.3	22.9	-38.2[1]	-5.9
DT239	Broad Street 4	42.0	30.7	29.4	-29.9	-4.1
DT314	Catharine Place*	-	14.8	16.6	-	12.1
DT315	Sion Hill* (west) at junction with Sion Rd)	-	10.5	9.4	-	-11.1
DT321	Sion Road* (north of private one-way exit)	-	-	10.9	-	-
DT322	Winifred's Lane*	-	-	13.3	-	-

*Data not available for Q1 2023.
[1]Note – Site DT238 moved locations in January 2024 due to low data capture during 2023

Observations: Table 2 presents a comparison of baseline (2023 and 2024) and in-trial (2025) data collected in Q1. When comparing Q1 2025 (in-trial data) with Q1

2023 baseline data (where available) all sites show improvements or remain the same.

When comparing Q1 2024 with Q1 2025 there are increased NO_2 concentrations at 15 of the 25 monitoring sites (by up to 4-5 µg/m^3). However, further investigation shows concentrations at the Bath A4 Roadside monitoring site also rose by 6% during this time and other continuous monitoring sites in Bristol and South Gloucestershire showed similar increases. It is therefore unlikely that the small increases are due to the trial.

Continued overleaf.

Table 3 – Comparison of Quarter 2 (2023, 2024 and 2025) Lower Lansdown provisional NO_2 Diffusion Tube Data (µg/m^3)

Site ID	Site Name	Q2 2023 (Baseline)	Q2 2024 (Baseline)	Q2 2025 (In-trial)	Change (%) 2023-25	Change (%) 2024-25
DT003	Broad St	27.5	23.8	20.3	-26.3	-14.9
DT004	George St	23.1	18.4	18.1	-21.8	-2.1
DT005	Gay St – Top (Gay St North)	20.2	16.0	15.0	-25.5	-6.3
DT037	Charlotte St	21.9	20.6	17.4	-20.5	-15.5
DT145	Lansdown Road (south of Camden Crescent)	21.0	17.0	16.6	-20.8	-2.5
DT148	Julian Rd	18.9	19.0	16.5	-12.6	-12.9
DT158	Paragon 2	22.4	16.6	17.6	-21.4	6.0
DT173	Upper Bristol Road 2	23.3	21.5	18.5	-20.6	-13.8
DT182	Gay Street – Lower (George St junction)	32.3	25.2	23.1	-28.3	-8.0
DT213	Marlborough Lane	16.5	13.4	13.3	-19.6	-1.0
DT214	Marlborough Buildings	12.2	11.1	10.6	-13.4	-5.0
DT215	Queens Parade Place	14.8	11.3	12.2	-17.4	7.7
DT217	Cavendish Road (top at junction w/ Sion Hill East)	13.5	10.7	7.8	-41.9	-26.9
DT219	Morford Street	18.3	13.7	14.0	-23.5	2.0
DT221	Gay Street – façade (opposite junction w/ George St)	28.2	23.1	21.1	-25.3	-8.8
DT232	Lansdown Road 3 (between Julian Rd and Bennett St junctions)	22.6	19.9	18.1	-19.8	-9.0
DT233	Lansdown Road 4 (opposite junction with Bennett Street)	24.9	18.8	17.8	-28.5	-5.1
DT234	Gay Street 2 (south of Queens's Parade Pl)	34.8	26.5	22.1	-36.6	-16.8
DT237	Broad Street 2	40.3	23.7	24.3	-39.5	2.9
DT238	Broad Street 3	27.2	21.1	17.7	-34.7	-15.8
DT239	Broad Street 4	35.9	29.0	25.6	-28.8	-11.7
DT314	Catharine Place*	-	8.5	8.4	-	-0.8
DT315	Sion Hill* (west) opp junction with Sion Rd	-	6.7	8.2	-	21.8
DT321	Sion Road* (north of private one-way exit)	-	5.4	7.0	-	28.9
DT322	Winifred's Lane*	-	13.9	4.8	-	-65.6

*Data not available for Q2 2023.

[1]Note – Site DT238 moved locations in January 2024 due to low data capture during 2023

Table 3 presents a comparison of monitoring data from all the sites collected during Q2 2023 (baseline), Q2 2024 (baseline) and Q2 2025 (in-trial). Again, when comparing Q2 2025 (in-trial) to Q2 2023 (baseline) there are improvements in air quality at all sites where data was available.

When comparing Q2 2024 with Q2 2025 (baseline) there is a mixed picture with six sites showing small increases in NO_2 concentrations. These sites are:

- Paragon 2 (16.6 to 17.6 µg/m^3)
- Queens Parade Place (11.3 to 12.2 µg/m^3)
- Morford Street (13.7 to 14.0 µg/m^3)
- Broad Street 2 (23.7 to 24.3 µg/m^3)
- Sion Hill (West) opposite junction with Sion Road (6.7 to 8.2 µg/m^3)
- Sion Road north of private one-way exit (5.4 to 7 µg/m^3)

Of these, DT215 Queens Parade Place had one month of missing data in Q2 2025 and DT321 Sion Road had one month of missing data in Q2 2024 which contributes to the difference. (Sion Road was installed in May 2024 and the tube on Queens Parade Place was missing.)

The sites remain well below the air quality objective (40 µg/m^3) and monitoring will continue. It should be noted that there are several factors which can affect NO_2 concentrations. These include but are not limited to weather, local pollution sources, roadworks/closures, and seasonality. The additional monitoring will continue in the scheme until a decision is made on the scheme.

Several sites show improvement in air quality with a decrease in NO_2 concentrations every quarter when compared with the available baseline figures (Q4, Q1 and Q2):

- DT003 Broad Street
- DT239 Broad Street 4
- DT182 Gay Street - Lower (opposite the junction with George Street)
- DT234 Gay Street 2 (South of Queens's Parade Place)
- DT173 Upper Bristol Road 2
- DT217 Cavendish Road (top at junction w/ Sion Hill East)

Additionally:

Winifred's Lane showed a significant improvement in Q2 2025 when compared with Q2 2024 (baseline) from 13.9 µg/m^3 to 4.8 µg/m^3 (-65.6%). Other quarterly comparisons were not available.

DT005 Gay Street – Top (Gay Street North) showed less marked improvements each quarter against baseline. In Q2 2025 (in-trial) readings of 15.0 µg/m^3 were favourable when compared with baseline readings of 20.2 µg/m^3 in Q2 2023 (-25%).

Concentrations recorded at **DT145 Lansdown Road (South of Camden Crescent)** and **DT232 Lansdown Road 3 (between Julian Rd and Bennett St junctions)** are lower compared with baseline data or the level remains the same. At **DT232 Lansdown Road 3,** the highest reading was 30.9 µg/m^3 in Q1 2023 (baseline). At **DT145 Lansdown Road** (South of Camden Crescent) the highest reading was 26.9 µg/m^{3}in Q1 2023 (baseline).

DT233 Lansdown Road 4 (opposite junction with Bennett Street) shows a fluctuating picture but concentrations in Q2 2025 (in-trial) were below both baseline years at 17.8 µg/m^3. In Q4 2024 (in-trial), readings were just slightly higher than in Q4 2023 (baseline). In Q1 2025 (in-trial) concentrations were below baseline Q1 2023 (31.7 µg/m^3) but above Q1 2024 (24.3 µg/m3).

DT148 Julian Road shows an improvement against baseline during some quarters. In Q2 2025 (in-trial), concentrations of 16.5 µg/m^3 compared favourably against 18.9 µg/m^3 and 19.0 µg/m^3 in 2023 and 2024 respectively (both baseline). In Q1 2025 (in-trial), concentrations of 23.7 µg/m^3 compared favourably with baseline figure of 26.2 µg/m^3 in Q1 2023 but not Q1 2024 (21.4 µg/m^3).

DT219 Morford Street shows a mixed picture. There were improvements against baseline during some quarters. In Q4 2024 (in-trial) concentrations of 22.3 µg/m^3 are 12% higher than baseline Q4 2023 results which were 19.8 µg/m^3. In Q1 2025 (in-trial), concentrations of 23.6 µg/m^3 compare favourably with baseline Q1 2023 (24.1 µg/m^3) but are 20% higher than baseline Q1 2024 results (19.6 µg/m$^{3)}$. In Q2 2025 (in-trial) concentrations of 14.0 µg/m^3 compared favourably with 18.3 µg/m^3 recorded in the baseline Q2 2023. But this was slightly higher when compared with baseline Q2 2024 (13.7 µg/m^3).

Annual Monitoring Results

The data shown below in **Table 4** is provisional and is currently being finalised. The results will be available when the Annual Status Report (ASR) has been peer reviewed.

Table 4 – Annual Average NO_2 Diffusion Tube Monitoring Results: Lower Lansdown and The Circus LN (µg/m^3)

Site ID	Site Name	2023	2024	Change (%)
DT003	Broad St	25.7	21.7	-15.5
DT004	George St	19.8	16.3	-17.7
DT005	Gay St - Top	18.0	15.9	-12.1
DT037	Charlotte St	19.3	17.7	-7.9
DT145	Lansdown Road	17.8	15.7	-12.0
DT148	Julian Rd	17.4	17.2	-1.3
DT158	Paragon 2	19.6	16.5	-15.8
DT173	Upper Bristol Road 2	23.6	21.1	-10.8
DT182	Gay Street - Lower	27.1	22.9	-15.5
DT213	Marlborough Lane	14.2	12.4	-12.6
DT214	Marlborough Buildings	13.2	11.2	-14.7
DT215	Queens Parade Place	13.0	11.4	-11.7
DT217	Cavendish Road	11.3	10.0	-11.7
DT219	Morford Street	15.7	14.0	-11.0
DT221	Gay Street - façade	23.1	20.4	-11.7
DT232	Lansdown Road 3	20.9	18.6	-10.6
DT233	Lansdown Road 4	20.3	17.9	-11.6
DT234	Gay Street 2	28.2	22.9	-18.9
DT237	Broad Street 2	28.0	21.5	-23.2
DT238	Broad Street 3*	26.5	18.3	-31.0
DT239	Broad Street 4	28.9	24.4	-15.6
DT314	Catharine Place	11.1	9.5	-14.3
DT315	Sion Hill	7.4	7.2	-2.6
DT321	Sion Road*	-	6.0	-
DT322	Winifred's Lane*	-	10.9	-

*Data not available for 2023

Observations: Table 4 compares monitoring data from 2024 with baseline data collected in 2023.

- Where monitoring sites were already in existence, 2023 data was collected from January to December 2023. Note that DT315 Sion Hill and DT314 Catharine Place were put in (in readiness for a trial) in October 2023.

- In 2024, all monitors were in place from January to December 2024 except DT321 (Sion Road) and DT322 (Winifred's Lane) which were added in May 2024.

- The 2024 results **only include the first two months of the trial's operation** in November and December 2024.

- All annual data has been bias-corrected using the local bias of 0.82 in 2024 and 0.81 in 2023 and annualised where there are less than 9 months data. This process is detailed in the ASR https://www.bathnes.gov.uk/document-and-policy-library/annual-air-quality-reports).

The results of the monitoring show that the NO_2 concentrations at all locations are below 40 µg/m^3 and that the annual average air quality objective has not been exceeded. All concentrations in 2024 decreased from 2023.The results are comparable with data from across Bath where the average change between the 2023 and 2024 was a reduction of 9%.

It is recognised that 2024 data only include two months of the trial and so quarterly data is more helpful at this point. Monitoring will continue to assess what impact, if any, the interventions are having on air quality. We expect 2025 annual average NO_2 Diffusion Tube Monitoring Results for the area in Summer 2026.

Conclusion

- Baseline NO_2 monitoring has been carried out in the Lower Lansdown and The Circus Liveable Neighbourhood area and surrounding streets to help establish the impact on air quality of the through-traffic restriction trials installed in the area by 7 November 2024 (and as outlined at www.bathnes.gov.uk/lansdownetro).

- The results of the baseline monitoring show that the NO_2 concentrations at all locations are below 40 µg/m^3 in 2024 and 2025 and that the annual average air quality objective has not been exceeded.[5]

[5] Air Quality Annual Status Report 2024 - https://www.bathnes.gov.uk/document-and-policy-library/annual-air-quality-reports

- During the first two months of trial in **Q4 2024**, five of the twenty-five sites in the LN area saw a small increase in NO_2 levels against baseline (as a quarterly average).
    - **Julian Road** (22.5 to 25 µg/m^3)
    - **Queens Parade Place** (16.3 to 17.3 µg/m3)
    - **Morford Street** (19.8 to 22.3 µg/m3)
    - **London Road 4** opposite junction with Bennett Street (24.8 to 25.6 µg/m^3)
    - **Sion Hill** (west) near the junction with Sion Road (10.1 to 11.1 µg/m^3)

- Although quarterly results are not directly comparable to the annual average objective, these concentrations are well below the annual average legal limit of 40 µg/m^3. All other sites are showing a decrease in concentration when compared to 2023 Q4 baseline results.

- **In Q1 2025, in-trial data** at all sites show improvements in air quality when compared to **2023 Q1 baseline** results. However, several sites recorded slightly higher levels compared to baseline data collected in **Q1 2024 (baseline)**. Further investigation showed similar increases in other areas of the district and wider region. It is therefore unlikely that the small increase is due to the trial.

- **In Q2 2025**, **in-trial data** at all sites also show improvements in NO_2 concentrations compared to baseline **Q2 2023** results. However, several sites recorded slightly higher levels of NO_2 concentrations compared to baseline data collected in **Q2 2024**. Further investigation showed that two of the sites had limited data in 2024 which could have affected the results. It is unclear if the small increases are due to the trial.

- Trial areas including **DT217 Cavendish Road** and **DT234 Gay Street 2 (south of Queens Parade Place)** shown on-going improvements. **DT322 Winifred's Lane** also showed significant improvement in **Q2 2025** compared with **Q2 2024 (baseline). Gay Street North** (where restrictions are now in place as part of the trial showed small improvements in each quarter against 2023 baseline data.

- **DT148 Julian Road** and **DT219 Morford Street** show a mixed, fluctuating picture when comparing in-trial quarters Q4 2024, Q1 and Q2 2025 against the same quarters in the baseline.

- All annual average monitored concentrations were below the annual average objective of 40 µg/m^3 and showed lower concentrations between 2023 and 2024. The results show similar trends to other locations across Bath. Monitoring will continue to determine the impact, if any, of the interventions until a decision is made to either make the scheme permanent or remove it. We recognise that quarterly results are more useful until we receive 2025 annual average data in 2026.

Further information

- As part of our obligations under the Local Air Quality Management (LAQM) legislation (part IV of Environment Act 1995 as amended by the Environment Act 2021) we have issued an Annual Status Report (ASR) alongside this report. These set out and comment on air quality data from across the wider authority. These are found at https://www.bathnes.gov.uk/document-and-policy-library/annual-air-quality-reports
- You can also view an interactive map of historical NO_2 data collected from monitoring locations around the area, here: https://www.bathnes.gov.uk/nitrogen-dioxide-monitoring-data

Appendix 1

Table 3 – Quarterly NO_2 Monitoring Results: Diffusion Tube – Lower Lansdown LN (µg/m^3)

Site ID	Site Name	Q1 2023	Q2 2023	Q3 2023	Q4 2023	Q1 2024	Q2 2024	Q3 2024	Q4 2024	Q1 2025	Q2 2025
DT003	Broad St	37.4	27.5	28.2	34.7	29.3	23.8	25.3	27.5	28.2	20.3
DT004	George St	27.5	23.1	20.6	27.4	21.3	18.4	18.4	21.9	24.3	18.1
DT005	Gay St - Top	28.5	20.2	17.3	23.1	22.3	16.0	15.9	23.1	23.4	15.0
DT037	Charlotte St	30.3	21.9	18.2	24.6	22.8	20.6	19.2	23.0	25.7	17.4
DT145	Lansdown Road	26.9	21.0	17.5	22.6	21.4	17.0	16.1	22.0	23.3	16.6
DT148	Julian Rd	26.2	18.9	18.3	22.5	21.4	19.0	18.7	24.0	23.7	16.5
DT158	Paragon 2	29.2	22.4	19.5	25.9	24.4	16.6	16.8	22.9	27.7	17.6
DT173	Upper Bristol Road 2	36.3	23.3	26.6	30.4	29.2	21.5	23.5	28.6	28.8	18.5
DT182	Gay Street - Lower	35.5	32.3	30.6	35.7	30.1	25.2	25.3	30.5	28.8	23.1
DT213	Marlborough Lane	22.1	16.5	14.1	17.5	17.4	13.4	12.3	17.5	19.5	13.3
DT214	Marlborough Buildings	22.1	12.2	12.3	18.5	14.7	11.1	11.0	18.3	18.3	10.6
DT215	Queens Parade Place	20.1	14.8	12.7	16.3	15.5	11.3	11.6	17.3	18.2	12.2
DT217	Cavendish Road	17.8	13.5	10.7	13.9	14.8	10.7	9.9	13.3	13.1	7.8
DT219	Morford Street	24.1	18.3	15.3	19.8	19.6	13.7	12.5	22.3	23.6	14.0

Site ID	Site Name	Q1 2023	Q2 2023	Q3 2023	Q4 2023	Q1 2024	Q2 2024	Q3 2024	Q4 2024	Q1 2025	Q2 2025
DT221	Gay Street - façade	31.3	28.2	25.6	29.2	25.2	23.1	23.9	27.5	25.7	21.1
DT232	Lansdown Road 3	30.9	22.6	22.0	27.5	24.5	19.9	19.4	26.1	24.9	18.1
DT233	Lansdown Road 4	31.7	24.9	21.0	24.8	24.3	18.8	18.8	25.6	27.0	17.8
DT234	Gay Street 2	37.2	34.8	32.0	35.1	32.3	26.5	26.2	27.9	27.9	22.1
DT237	Broad Street 2	41.0	40.3	28.2	28.6	28.3	23.7	24.4	28.5	30.6	24.3
DT238	Broad Street 3*	37.0	27.2	28.6	-	24.3	21.1	20.7	23.2	22.9	17.7
DT239	Broad Street 4	42.0	35.9	29.9	34.5	30.7	29.0	29.8	29.5	29.4	25.6
DT314	Catharine Place	-	-	-	15.2	14.8	8.5	8.3	14.7	16.6	8.4
DT315	Sion Hill	-	-	-	10.1	10.5	6.7	6.7	11.1	9.4	8.2
DT321	Sion Road	-	-	-	-	-	5.4	5.3	10.1	10.9	7.0
DT322	Winifred's Lane	-	-	-	-	-	13.9	14.0	11.2	13.3	4.8

The results are averaged across 3 months' data and have not been bias adjusted. The 2024 and 2025 results are also provisional and may be subject change following end of year QA/QC checks. As such the quarterly results should not be compared to annual average objectives. Shaded squares have one or two months' missing data.

*Note – Site DT238 moved locations in January 2024 due to low data capture during 2023