
Dublin Airport Air Quality Monitoring
Q1 2026

Sustainability

May 2026



Dublin Airport Air Quality Monitoring Quarter 1 Report 2026



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Glossary

Abbreviation Definition

AQG	Air Quality Guidelines
DAP	Dublin Airport
CAFE	Cleaner Air for Europe
EPA	Environmental Protection Agency
NO	Nitrogen Oxide
NO ₂	Nitrogen Dioxide
NO _x	Oxides of Nitrogen
PM ₁₀	Airborne Particulate Matter, particle size less than 10 micron.
PM _{2.5}	Airborne Particulate Matter, particle size less than 2.5 micron.
The Regulations	Ambient Air Quality Standards Regulations 2011
WHO	World Health Organisation

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Executive Summary

daa undertakes a programme of air quality monitoring at Dublin Airport (DAP) and in surrounding communities. Monitoring is undertaken using a stationary continuous air monitoring station located within the DAP boundary. Air quality is also monitored at 11 locations within and outside the airport boundary using passive diffusion tube sampling.

This report provides an overview of the results of air quality monitoring undertaken by daa at DAP and environs in Q1 2026. Air monitoring locations are listed in Table 2 and presented as Figure 1 of this report.

The Ambient Air Quality Standards Regulations 2022 (S.I. No. 739/2022) give effect in Ireland to the EU Directive 2008/50/EC on Cleaner Air for Europe (CAFÉ) and establish the legal framework for assessing, monitoring, reporting and managing ambient air quality. The Regulations are referred to in this report for comparison purposes only. There is no requirement under the Regulations for individual companies or operators to carry out air monitoring. In Ireland, compliance with the Regulations is the responsibility of the Environmental Protection Agency (EPA), which is deemed to be the competent authority for the purpose of Directive 2008/50/EC. The EPA is required to submit an annual Air Quality report to the Minister of the Environment, Climate and Communications and to the European Commission. The latest EPA Report entitled “Air Quality in Ireland 2024” was published in September 2025 and is available on the [EPA Website](#).

World Health Organisation (WHO) published updated Air Quality Guidelines (AQG) in 2021 based on the impact of air pollutants on health. The 2023 [Clean Air Strategy for Ireland](#) commits Ireland to meeting WHO AQGs by 2040 and outlines interim targets towards achieving final AQG levels to be met by 2026 and 2030. A revised CAFE Directive (EU 2024/2881) was published in 2024 introducing new regulatory limit values to be achieved by 2030. This directive is due to be transposed into Irish legislation by the end of 2026. The WHO targets and upcoming regulatory limit values are included on graphs displaying air quality monitoring results within this report.

This report highlights the air quality levels around Dublin Airport from January to March 2026. The diffusion tube results for NO₂ and benzene (C₆H₆) are with the annual limit values of 40µg/m³ and 5µg/m³ respectively. The highest average NO₂ concentrations were recorded at the Dublin Airport bus depot which experiences significant vehicular activity.

During Q1 2026, operation of the continuous air quality monitoring station was affected by

faults with the NO₂ analyser and particulate matter (PM₁₀ and PM_{2.5}) monitoring equipment. As a result, no valid NO₂ data were captured during the quarter, and a data capture rate of approximately 24% was achieved for PM₁₀ and PM_{2.5}. daa is currently reviewing options for the future operation of the continuous monitoring station following the equipment faults experienced during the reporting period. Despite the reduced dataset, the available monitoring results indicate that air pollutant concentrations remained below the relevant regulatory limit values.

1.0 Introduction

1.1 Background

Dublin Airport (DAP) is located approximately 10 km north of Dublin city. The areas to the west of the airport are predominantly rural in nature. The airport is surrounded by Swords Village to the north and Santry to the south. The airport is bounded on two sides by the two busiest motorways in the country: the M1 and the M50. The M1 motorway is approximately 1km east of the current location of the airport's onsite air quality monitoring station and the M50 motorway is approximately 2.5 km south of the monitoring location.

1.2 Purpose

The purpose of this report is to present an overview of the results of air quality monitoring conducted onsite at DAP and at 11 monitoring locations in the vicinity of the airport in Q1 2026. The Ambient Air Quality Standards Regulations 2011, S.I. No. 180 of 2011 (the Regulations) amended to S.I. No. 739 of 2022 (the Regulations), implement EU Directive 2008/50/EC on Ambient Air Quality and Cleaner Air for Europe. This report compares the data collected during the daa monitoring programme with limit values contained in the Regulations to assess air quality at each monitoring location. Since Q3 2023, the latest World Health Organisation (WHO) Air Quality Guidelines (AQGs) and interim targets outlined in the Clean Air Strategy for Ireland are also presented in this report.

In Q4 2024, a revised CAFE Directive (EU 2024/2881) entered into force which introduces new air quality limit standards to be achieved by 2030 that align more closely with the WHO AQG. The revised CAFE Directive is due to be transposed into Irish legislation by the end of 2026. Upcoming EU limit values and WHO target values for NO₂, PM_{2.5}, and PM₁₀ are presented in Table 1.

Table 1 EU limits and WHO Air Quality target values

Pollutant	Averaging time	unit	Current EU limit value	2030 EU limit value	WHO interim and final targets (IT)		
					IT3 (2026)	IT4 (2030)	Final AQG (2040)
NO ₂	Annual	µg/m ³	40	20	20	20	10
PM ₁₀	Annual	µg/m ³	40	20	30	20	15
PM _{2.5}	Annual	µg/m ³	20	10	15	10	5
Benzene	Annual	µg/m ³	5	3.4	-	-	-

The Regulations, revised CAFE Directive and Ireland's Clean Air Strategy are referred to in this report for comparison and reference purposes only. There is no requirement under the Regulations that companies or operators shall carry out air quality monitoring. In Ireland, compliance with the Regulations is the responsibility of the Environmental Protection Agency (EPA), which is deemed to be the competent authority.

A range of parameters are recorded at DAP's continuous on-site monitoring station as follows:

- Sulphur dioxide (SO₂)
- Oxides of nitrogen NO_x (NO and NO₂)
- Carbon monoxide (CO)
- Ozone (O₃)
- Particulate Matter (PM₁₀)
- Particulate Matter (PM_{2.5})

Diffusion tube samplers located on the Dublin Airport campus and in communities surrounding the airport monitor the following gases:

- Nitrogen dioxide (NO₂)
- Sulphur dioxide (SO₂)
- Benzene
- Ethylbenzene
- m- and p-Xylene
- o-Xylene
- Toluene
- Ozone

The results of air quality monitoring for all the above parameters are reviewed by daa on a continuous basis.

To date and in line with air quality reporting at many airports, daa has focussed reporting on the most important parameters:

- Nitrogen Dioxide (NO₂) and Particulate Matter (PM_{2.5} and PM₁₀) at the DAP automatic station; and
- Nitrogen Dioxide (NO₂) and Benzene using diffusion tubes at 11 offsite locations.

2.0 Monitoring Locations

A list of the ambient air quality sampling locations is presented in Table 2. Sampling locations are presented as Figure 1.

Table 2 Community ambient air quality monitoring locations

Ref	Location	Method	Parameter
On-site	Dublin Airport.	Continuous analyser	NO₂ PM₁₀ PM_{2.5}
A1	Forrest Little Golf Club.	Passive Tubes	NO₂ Benzene
A2	Kilreesk Lane, St. Margaret's.	Passive Tubes	
A3	Ridgewood Estate West, Swords.	Passive Tubes	
A4	St. Margaret's School and Parish	Passive Tubes	
A5	Fire Station, Huntstown, Dublin Airport.	Passive Tubes	
A6	Southern Boundary Fence, Dublin	Passive Tubes	
A7	Western Boundary Fence, Dublin Airport	Passive Tubes	
A8	St. Nicholas of Myra School, Malahide Road.	Passive Tubes	
A9	Naomh Mearnóg GAA Club, Portmarnock.	Passive Tubes	
A10	Oscar Papa Site, Portmarnock.	Passive Tubes	
A11	Dublin Airport Bus Depot	Passive Tubes	



Figure 1 Air Quality Monitoring Locations

3.0 Parameters and Sampling Methodology

3.1 Offsite Passive Sampling:

3.1.1 Nitrogen Dioxide (NO₂) and Benzene (C₆H₆)

daa has installed a network of passive diffusion tube samplers in areas surrounding the airport. Monitoring locations are shown on Figure 1 and listed in Table 2. The diffusion tubes are exposed for approximately 4-week intervals and record monthly mean concentrations. Monthly mean concentrations are averaged to give an annual mean, presented in Figure 2. The tubes are analysed using UV Spectrophotometry at a UKAS (United Kingdom Accreditation Service) accredited laboratory. Results are expressed in µg/m³ (micrograms per cubic metre).

Nitrogen dioxide (NO₂) diffusion tubes were manufactured by Gradko International Ltd, and the samples were analysed using the 20% triethanolamine (TEA) in acetone method. Ireland does not currently publish a diffusion tube bias adjustment factor but in the absence of an Irish-specific factor, the United Kingdom Department for Environment, Food and Rural Affairs (DEFRA) national bias adjustment factor for Gradko diffusion tubes prepared with 20% TEA in acetone was applied. The factor used corresponds to Quarter 1 (Q1) 2026.¹

Bias adjustment factors are applied to NO₂ diffusion tube measurements to improve data accuracy and comparability with reference-grade analysers. Diffusion tubes are a low-cost, passive monitoring method that systematically underestimate or overestimate NO₂ concentrations due to factors such as laboratory preparation methods, environmental conditions, and analytical procedures. A bias adjustment factor corrects for these systematic differences by comparing diffusion tube results with measurements from co-located continuous analysers. Applying an appropriate bias factor helps ensure that diffusion tube data more accurately reflects ambient air quality and are suitable for assessment against regulatory standards.

3.2 Onsite Sampling

3.2.1 Equipment Calibration

An external expert service provider undertakes routine servicing of the DAP air quality monitoring equipment. During routine visits, air filters are replaced, and the instruments are

¹ [NO2 DEFRA \(UK\) diffusion tube bias factor March 2026](#)

calibrated to EPA gas standards. The technician also inspects the functionality of the station and sampling system. An emergency call out service is also provided by the service provider. The routine calibration process takes approximately 24 hours, data collection resumes after this 24-hour period.

During Q1 2026, operation of the continuous air quality monitoring station was affected by faults with the NO₂ analyser and particulate matter (PM₁₀ and PM_{2.5}) monitoring equipment. As a result, no valid NO₂ data were captured during the quarter, and a data capture rate of approximately 24% was achieved for PM₁₀ and PM_{2.5}. The reduced data capture is attributable to faults affecting the monitoring instruments, which subsequently became inoperable. daa is currently reviewing options for the future operation of the continuous monitoring station following the equipment faults experienced during the reporting period.

3.2.2 Nitrogen Dioxide (NO₂)

Onsite monitoring of NO₂ is usually carried out on a continuous basis at the stationary airport monitoring station. Measurement of NO₂ is carried out using a Horiba APNA-370 ambient NO_x monitor which employs a crossflow modulated chemiluminescence method. The results are expressed in µg/m³. As outlined in Section 3.2.1, faults affecting the monitoring equipment during Q1 2026 resulted in no valid NO₂ data being recorded.

3.2.3 Particulate Matter (PM₁₀) and (PM_{2.5})

PM₁₀ and PM_{2.5} are defined as airborne particulate matter with an aerodynamic diameter equal to or less than 10µm and 2.5µm, respectively. They are monitored on a continuous basis at the airport monitoring station. The instruments automatically measure and record airborne particulate levels using the principle of beta ray attenuation. The sampler monitors particulate matter by drawing a measured volume of air through a chamber containing a pre-conditioned and pre-weighed filter in accordance with the internationally accepted protocol for PM₁₀ and PM_{2.5} sampling. The results are expressed in µg/m³.

4.0 Monitoring Results

4.1 Offsite NO₂ Monitoring Results

Figure 2 presents the annual mean NO₂ concentration for each location based on the monthly passive tube sampling. The Regulations mandate an annual mean limit value of 40 µg/m³ for NO₂. Upcoming 2030 regulatory limits and WHO AQGs interim and final targets are also included in the graph below. As can be seen from Figure 2, the mean NO₂ levels including at the bus depot sampling point A11 are currently below the annual regulatory limit. The monthly average for A11 for parameter NO₂ during Q1 2026 was calculated at 32.81 µg/m³. The higher level of NO₂ compared to other sites is related to the volume of vehicular traffic at this location.

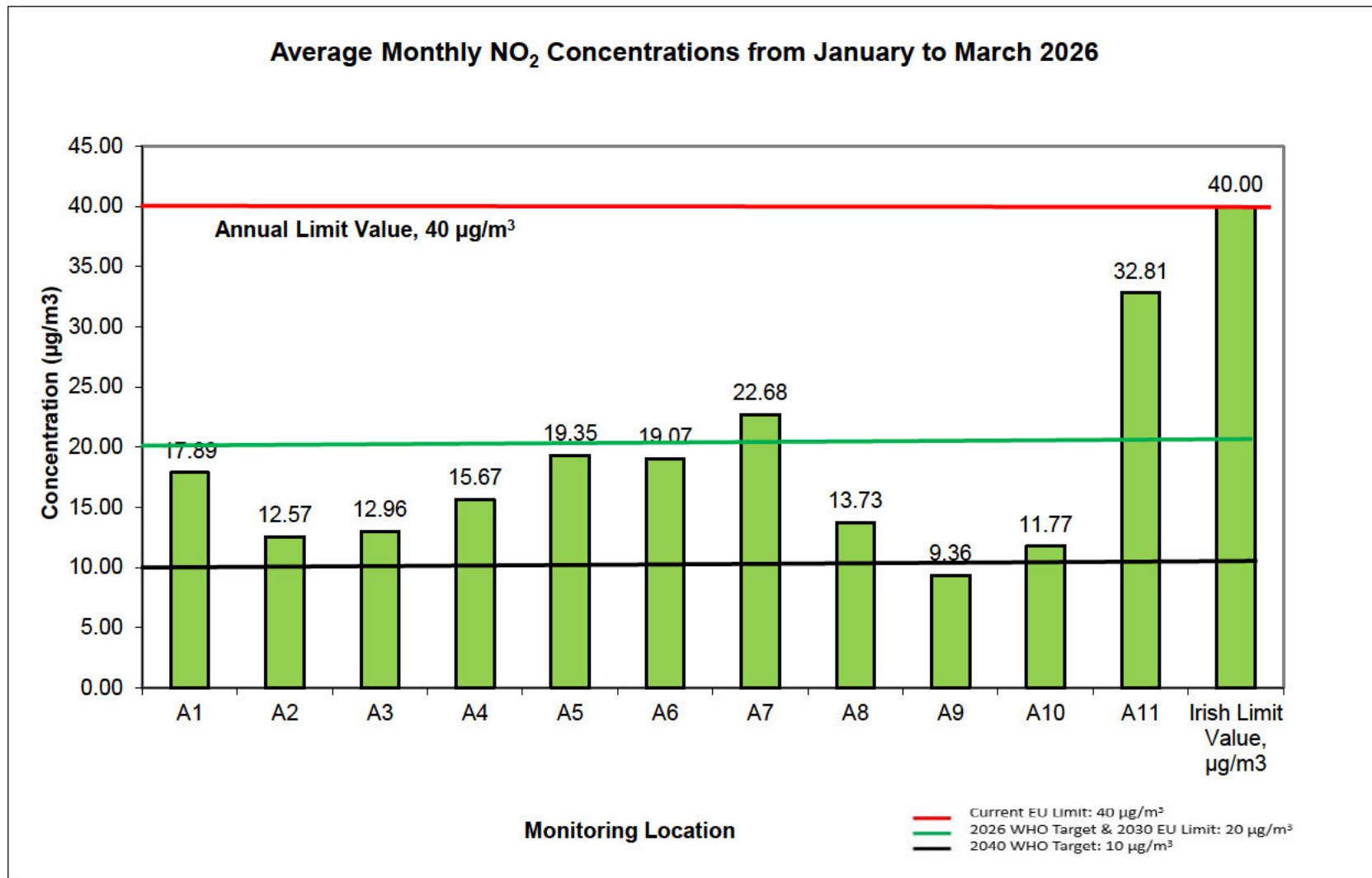


Figure 2 Average Monthly NO₂ Concentrations Q1 2026

4.2 Offsite Benzene Monitoring Results

Figure 3 presents the annual mean Benzene concentration for each location based on the monthly passive tube sampling. The Regulations mandate an annual mean limit value of 5 $\mu\text{g}/\text{m}^3$ for Benzene. As can be seen from Figure 3, the annual mean values were below the limit value of 5 $\mu\text{g}/\text{m}^3$ at all monitoring locations.

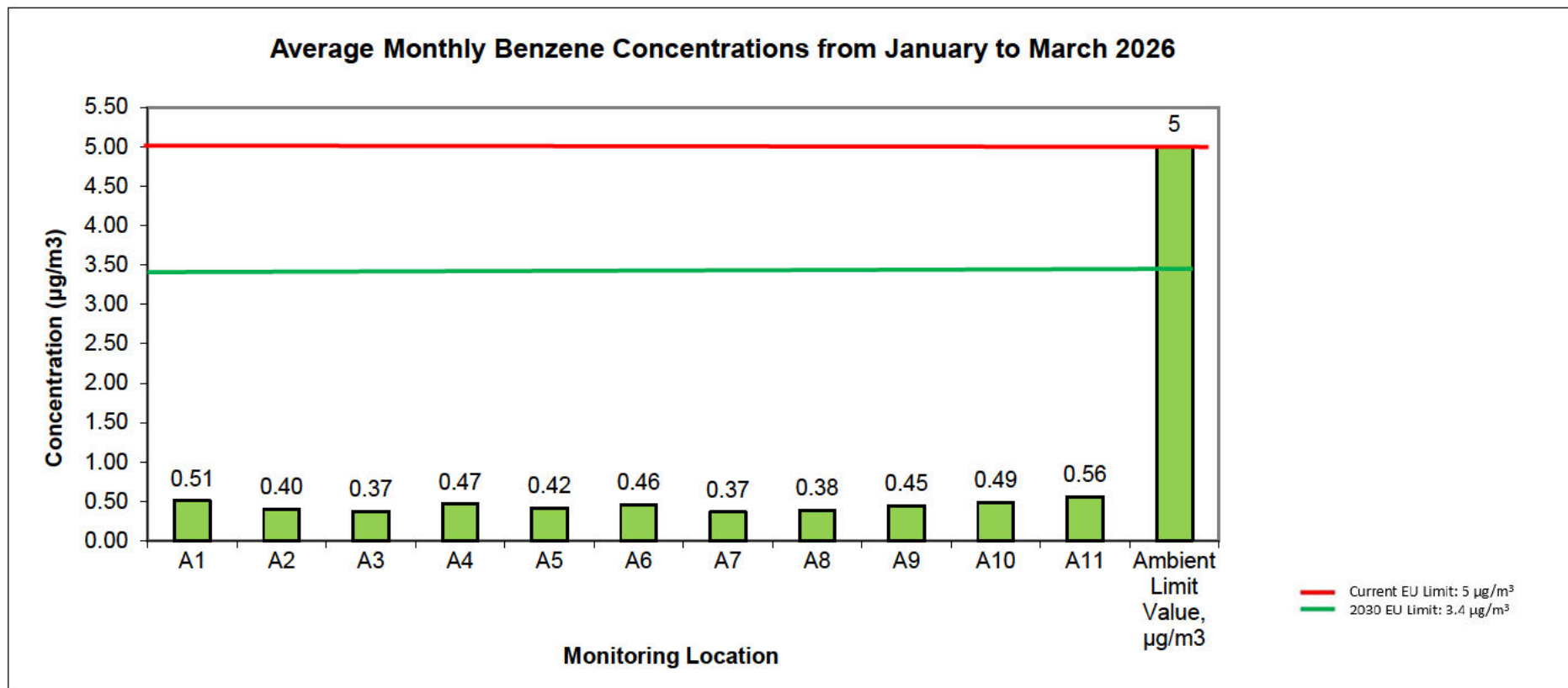


Figure 3 Average Monthly Benzene (C_6H_6) Concentrations Q1 2026

5.0 On-site Airport Monitoring Station Results

5.1 On-site Airport Monitoring Station Results: PM₁₀

Daily average PM₁₀ concentrations recorded at the automatic station in DAP in Q1 2026 are presented in Figure 5. The average PM₁₀ was calculated as 6.02 µg/m³.

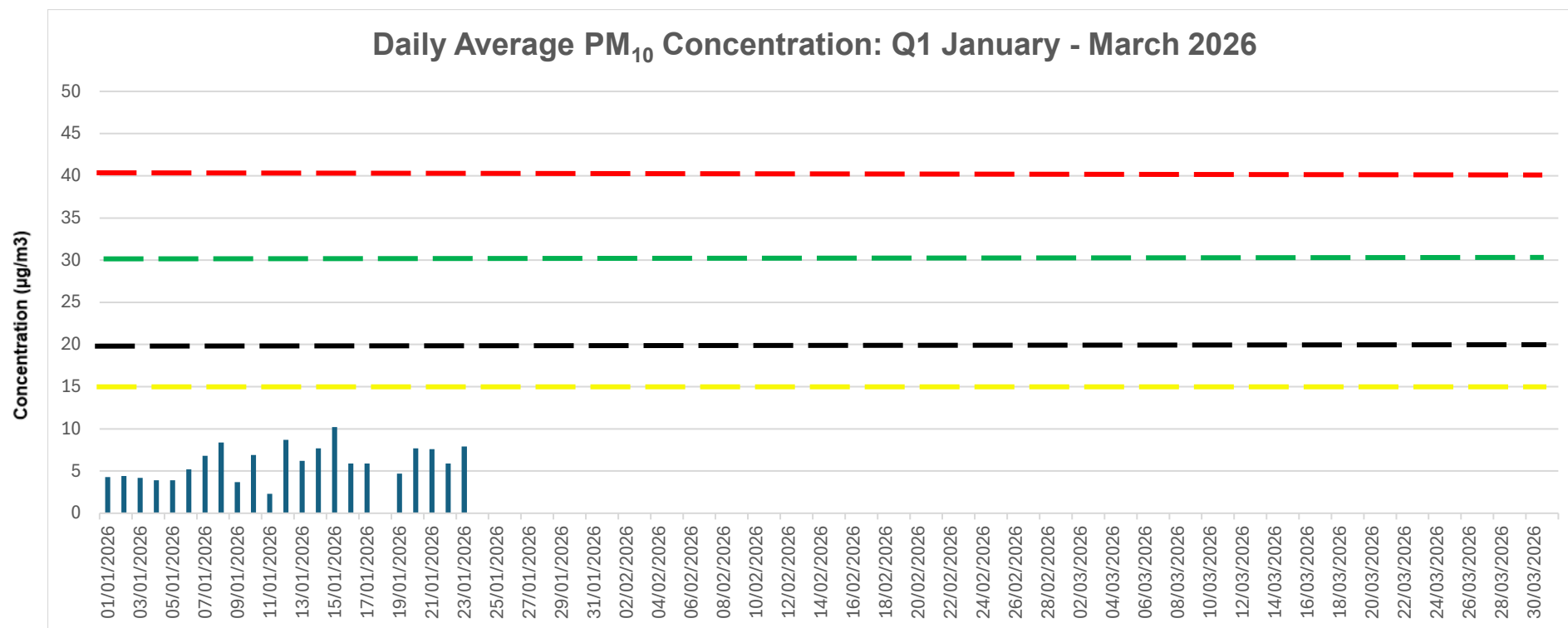


Figure 4 Daily Average PM₁₀ Q1 2026

— Current EU Limit: 40 µg/m³
 — 2026 WHO Target: 30 µg/m³
 — 2030 EU Limit: 20 µg/m³
 — 2040 WHO Target: 15 µg/m³

5.2 On-Site Airport Monitoring Station Results: PM_{2.5}

Daily average PM_{2.5} concentrations recorded at the automatic station in DAP in Q1 2026 are presented in Figure 6. The average PM_{2.5} was calculated as 3.60 µg/m³.

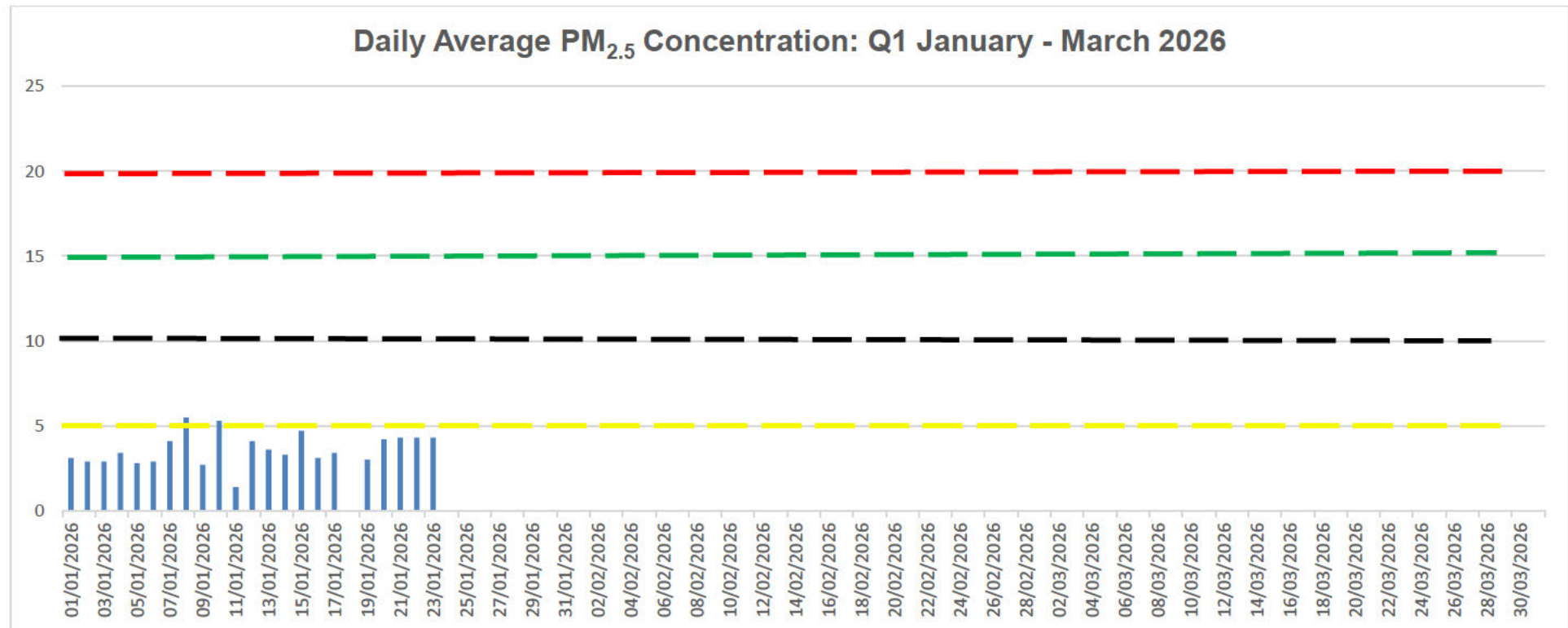


Figure 5 Daily Average PM_{2.5} Q1 2026

— Current EU Limit: 20 µg/m³
— 2026 WHO Target: 15 µg/m³
— 2030 EU Limit: 10 µg/m³
— 2040 WHO Target: 5 µg/m³

The Regulations set a 24-hour PM₁₀ limit value of 50 µg/m³ and an annual mean limit value of 40 µg/m³ as shown in Table 3. There is no 24-hour limit value for PM_{2.5} set in the Regulations. The annual mean limit for PM_{2.5} is 20 µg/m³.

Objective	Averaging Period	Limit or Threshold Value (µg/m ³)	No. of Allowed Exceedances	No. of Exceedances (Year to date)
PM ₁₀ Limit Value	24 hour	50	Not to be exceeded on more than 35 days per year	0
PM ₁₀ Limit Value	Calendar Year	40	NA	NA
PM _{2.5} Limit Value	Calendar Year	20	NA	NA

Table 3 PM₁₀ and PM_{2.5} Limit Values

6.0 Conclusion

Onsite Monitoring: During Q1 2026, operation of the continuous air quality monitoring station was affected by faults with the NO₂ analyser and particulate matter (PM₁₀ and PM_{2.5}) monitoring equipment. Consequently, no valid NO₂ data were captured during the reporting period and approximately 24% data capture was achieved for PM₁₀ and PM_{2.5}. The available PM₁₀ and PM_{2.5} monitoring results were below the applicable limit values, including those introduced under the revised CAFE Directive to be achieved by 2030. daa is currently reviewing options for the future operation of the continuous monitoring station.

Offsite Monitoring: Diffusion tube results for NO₂ indicate that the highest concentrations are recorded at the bus depot (A11) at the airport. The bus depot at the airport is Ireland's busiest bus depot. The elevated readings are related to the volume of vehicular activity that occurs in the area.

Diffusion tube results for benzene indicate that concentrations at all locations are well below the annual average limit value.