# London Borough of Barking and Dagenham Air Quality Annual Status Report for 2022

# Date of publication: May 2023

This report provides a detailed overview of air quality in London Borough of Barking and Dagenham during 2022. It has been produced to meet the requirements of the London Local Air Quality Management (LLAQM) statutory process[1].

## Contact details:


**Kenny Abere**

Environmental Protection Team,

Town Hall Square, 1 Clockhouse Ave,

Barking IG11 7LU

E: mail: environmentalprotection@lbbd.gov.uk


[1] LLAQM Policy and Technical Guidance 2019 (LLAQM.TG(19))

## Contents

**Tables**

## Abbreviations

| Abbreviation | Description |
|---|---|
| AQAP | Air Quality Action Plan |
| AQMA | Air Quality Management Area |
| AQO | Air Quality Objective |
| BEB | Buildings Emission Benchmark |
| CAB | Cleaner Air Borough |
| EV | Electric Vehicle |
| GLA | Greater London Authority |
| LAEI | London Atmospheric Emissions Inventory |
| LAQM | Local Air Quality Management |
| LLAQM | London Local Air Quality Management |
| NRMM | Non-Road Mobile Machinery |
| $PM_{10}$ | Particulate matter less than 10 micron in diameter |
| $PM_{2.5}$ | Particulate matter less than 2.5 micron in diameter |
| TEB | Transport Emissions Benchmark |
| TfL | Transport for London |
| | |

## Table A. Summary of National Air Quality Standards and Objectives

| Pollutant | Standard / Objective (UK) | Averaging Period | Date[(1)] |
|---|---|---|---|
| Nitrogen dioxide ($NO_2$) | 200 µg $m^{-3}$ not to be exceeded more than 18 times a year | 1-hour mean | 31 Dec 2005 |
| Nitrogen dioxide ($NO_2$) | 40 µg $m^{-3}$ | Annual mean | 31 Dec 2005 |
| Particles ($PM_{10}$) | 50 µg $m^{-3}$ not to be exceeded more than 35 times a year | 24-hour mean | 31 Dec 2004 |
| Particles ($PM_{10}$) | 40 µg $m^{-3}$ | Annual mean | 31 Dec 2004 |
| Particles ($PM_{2.5}$) | 20 µg $m^{-3}$ | Annual mean | 2020 |
| Particles ($PM_{2.5}$) | Target of 15% reduction in concentration at urban background locations | 3-year mean | Between 2010 and 2021 |
| Sulphur dioxide ($SO_2$) | 266 µg $m^{-3}$ not to be exceeded more than 35 times a year | 15-minute mean | 31 Dec 2005 |
| Sulphur dioxide ($SO_2$) | 350 µg $m^{-3}$ not to be exceeded more than 24 times a year | 1-hour mean | 31 Dec 2004 |
| Sulphur dioxide ($SO_2$) | 125 µg $m^{-3}$ mot to be exceeded more than 3 times a year | 24-hour mean | 31 Dec 2004 |

**Notes:**

(1) Date by which to be achieved by and maintained thereafter

# 1. Air Quality Monitoring

## 1.1 Locations

### Table B. Details of Automatic Monitoring Sites for 2022

| Site ID | Site Name | X (m) | Y (m) | Site Type | In AQMA? If so, which AQMA? | Distance to Relevant Exposure (m) | Distance to Kerb of Nearest Road (N/A if not applicable) (m) | Inlet height (m) | Pollutants monitored | Monitoring technique |
|---|---|---|---|---|---|---|---|---|---|---|
| (BG1) | Rush Green Primary School | 551053 | 187233 | Suburban Background | Y | 28 | 50 | 4 | NO2, SO2 | Chemiluminescent, UV Florescence |
| (BG2) | Scrattons Farm | 548043 | 183320 | Suburban Background | Y | 24 | 24 | 3.5 | NO2, PM10 | Chemiluminescent, Teom |

## Table C. Details of Non-Automatic Monitoring Sites for 2022

| Site ID | Site Name | X (m) | Y (m) | Site Type | In AQMA? If so, which AQMA? | Distance to Relevant Exposure (m) | Distance to Kerb of Nearest Road (N/A if not applicable) (m) | Inlet height (m) | Pollutants monitored | Tube co-located with an automatic monitor. (Y/N) |
|---|---|---|---|---|---|---|---|---|---|---|
| DT1 | Ripple Road Primary School | 544793 | 183783 | Roadside | Y | 17 | 2 | 2.5 | NO2 | N |
| DT2 | 1A Westminster Gardens | 545032 | 183193 | Roadside | Y | 3 | 1 | 2.5 | NO2 | N |
| DT3 | 6/7 Scrattons Terrace | 547806 | 183543 | Roadside | Y | 5 | 1 | 2.5 | NO2 | N |
| DT4 | 291 Dagenham Heathway | 549035 | 184813 | Roadside | Y | 6 | 1 | 2.5 | NO2 | N |
| DT5 | Wood Lane/Valence Avenue Junction | 547789 | 185792 | Roadside | Y | 5 | 2 | 2.5 | NO2 | N |
| DT6a | Rush Green Primary School | 551057 | 187231 | Background | Y | 28 | N/A | 1.5 | NO2 | Y |
| DT6b | Rush Green Primary School | 551057 | 187231 | Background | Y | 28 | N/A | 1.5 | NO2 | Y |
| DT6c | Rush Green Primary School | 551057 | 187231 | Background | Y | 28 | N/A | 1.5 | NO2 | Y |
| DT7 | Whalebone Lane South/Whalebone North/High Road Junction | 548544 | 188125 | Roadside | Y | 2 | 2 | 2.5 | NO2 | N |
| DT8 | Outside No. 31 Eastern Avenue West (the A12) | 548359 | 189057 | Roadside | Y | 3 | 12 | 2.5 | NO2 | N |
| DT9 | St Pauls Way (Beside Abbey Green Play Area) | 544128 | 183662 | Roadside | Y | 3 | 2 | 2.5 | NO2 | N |
| DT10 | Glenny Road | 544385 | 184565 | Roadside | Y | 3 | 2 | 2.5 | NO2 | N |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| DT11 | 209 New Road (A1306) | 549832 | 183208 | Roadside | Y | 5 | 2 | 2.5 | NO2 | N |
| DT12 | 40 – 38 Thames Road | 546501 | 182713 | Roadside | Y | 5 | 2 | 2.5 | NO2 | N |
| DT13 | 2 Choats Road | 547081 | 183053 | Roadside | Y | 5 | 2 | 2.5 | NO2 | N |
| DT14 | High Road (Chadwell Health) A118 | 548065 | 187998 | Roadside | Y | 5 | 2 | 2.5 | NO2 | N |
| DT15 | 102 Renwick Road | 546935 | 183135 | Roadside | Y | 6 | 2 | 2.5 | NO2 | N |
| DT16 | 1 River Road | 545296 | 183204 | Roadside | Y | 5 | 2 | 2.5 | NO2 | N |
| DT17 | 95 Bastable Avenue | 545842 | 183144 | Roadside | Y | 5 | 2 | 2.5 | NO2 | N |
| DT18 | 463 Lodge Avenue | 546415 | 183717 | Roadside | Y | 5 | 2 | 2.5 | NO2 | N |
| DT19 | 835a Longbridge Road (A124) | 546744 | 185774 | Roadside | Y | 5 | 2 | 2.5 | NO2 | N |
| DT20 | 1 Althorne Way/ Wood Lane (A124) | 549173 | 186755 | Roadside | Y | 3 | 1 | 2.5 | NO2 | N |
| DT21 | 217 Whalebone Lane South (A1112) | 548733 | 187586 | Roadside | Y | 6 | 2 | 2.5 | NO2 | N |
| DT22 | 1249 Chequers Lane | 549078 | 183327 | Roadside | Y | 6 | 1 | 2.5 | NO2 | N |
| DT23 | 623 Rainham Road South | 550263 | 184902 | Roadside | Y | 5 | 2 | 2.5 | NO2 | N |
| DT24 | Cook Road | 548487 | 183557 | Roadside | Y | 20 | 2 | 2.5 | NO2 | N |
| DT25 | 61 King Edward's Road (Adjacent to A13) | 544699 | 183650 | Roadside | Y | 6 | 1 | 2.5 | NO2 | N |
| DT26 | 251 Valence Avenue | 547762 | 186888 | Roadside | Y | 5 | 1 | 2.5 | NO2 | N |
| DT27 | 145 Fanshawe Avenue | 544339 | 184702 | Roadside | Y | 5 | 1 | 2.5 | NO2 | N |
| DT28 | 102 Maplestead Road | 546731 | 183684 | Roadside | Y | 5 | 1 | 2.5 | NO2 | N |

## 1.2 Comparison of Monitoring Results with AQOs

The results presented are after adjustments for “annualisation” and for distance to a location of relevant public exposure (if required), the details of which are described in Appendix A.

**Table Di. Annual Mean $NO_2$ Ratified and Bias-adjusted Monitoring Results**

| Site ID | Site type | Valid data capture for monitoring period %[(a)] | Valid data capture 2022 %[(b)] | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|---|---|---|---|
| (BG1) | Automatic | - | 92 | - | - | - | - | - | 17 | 17 |
| (BG2) | Automatic | - | 100 | - | - | - | - | - | 20 | 21 |

**Table Dii. Annual Mean $NO_2$ Ratified and Bias-adjusted Monitoring Results**

| Site ID | Site type | Valid data capture for monitoring period %[(a)] | Valid data capture 2022 %[(b)] | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|---|---|---|---|
| DT1 | Diffusion tube | - | 83.3 | - | - | - | - | 28.5 | 30.05 | 29.76 |
| DT2 | Diffusion tube | - | 100.0 | - | - | - | - | 26.7 | 28.88 | 24.07 |
| DT3 | Diffusion tube | - | 100.0 | - | - | - | - | 29.0 | 30.88 | 28.63 |
| DT4 | Diffusion tube | - | 100.0 | - | - | - | - | 37.3 | **41.65** | 39.57 |
| DT5 | Diffusion tube | - | 100.0 | - | - | - | - | 31.1 | 38.94 | 35.12 |
| DT6a | Diffusion tube | - | 100.0 | - | - | - | - | 19.8 | 17.11 | 13.58 |

| Site ID | Site type | Valid data capture for monitoring period %[a] | Valid data capture 2022 %[b] | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|---|---|---|---|
| DT6b | Diffusion tube | - | 100.0 | - | - | - | - | 19.8 | 18.01 | 13.47 |
| DT6c | Diffusion tube | - | 100.0 | - | - | - | - | 19.8 | 15.18 | 13.50 |
| DT7 | Diffusion tube | - | 100.0 | - | - | - | - | 29.8 | 34.35 | 30.80 |
| DT8 | Diffusion tube | - | 100.0 | - | - | - | - | 26.8 | 31.68 | 27.69 |
| DT9 | Diffusion tube | - | 100.0 | - | - | - | - | - | 28.88 | 27.00 |
| DT10 | Diffusion tube | - | 91.7 | - | - | - | - | - | 25.91 | 24.47 |
| DT11 | Diffusion tube | - | 91.7 | - | - | - | - | - | 31.34 | 28.08 |
| DT12 | Diffusion tube | - | 100.0 | - | - | - | - | - | 26.51 | 23.40 |
| DT13 | Diffusion tube | - | 75.0 | - | - | - | - | - | 28.66 | 21.69 |
| DT14 | Diffusion tube | - | 100.0 | - | - | - | - | - | 32.02 | 32.98 |
| DT15 | Diffusion tube | - | 100.0 | - | - | - | - | - | 28.25 | 21.64 |
| DT16 | Diffusion tube | - | 100.0 | - | - | - | - | - | 34.63 | 34.86 |
| DT17 | Diffusion tube | - | 100.0 | - | - | - | - | - | 25.63 | 23.32 |
| DT18 | Diffusion tube | - | 100.0 | - | - | - | - | - | 39.09 | 36.83 |
| DT19 | Diffusion tube | - | 100.0 | - | - | - | - | - | 38.98 | 29.53 |
| DT20 | Diffusion tube | - | 100.0 | - | - | - | - | - | 27.02 | 25.97 |

| Site ID | Site type | Valid data capture for monitoring period %[(a)] | Valid data capture 2022 %[(b)] | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|---|---|---|---|
| DT21 | Diffusion tube | - | 100.0 | - | - | - | - | - | 37.00 | 35.83 |
| DT22 | Diffusion tube | - | 91.7 | - | - | - | - | - | 20.59 | 21.76 |
| DT23 | Diffusion tube | - | 100.0 | - | - | - | - | - | 35.18 | 32.78 |
| DT24 | Diffusion tube | - | 83.3 | - | - | - | - | - | 31.46 | 32.87 |
| DT25 | Diffusion tube | - | 100.0 | - | - | - | - | - | 39.66 | 37.49 |
| DT26 | Diffusion tube | - | 100.0 | - | - | - | - | - | 32.76 | 28.07 |
| DT27 | Diffusion tube | - | 100.0 | - | - | - | - | - | 32.61 | 29.25 |
| DT28 | Diffusion tube | - | 100.0 | - | - | - | - | - | 31.91 | 30.79 |

**Notes:**

The annual mean concentrations are presented as µg $m^{-3}$.

Exceedances of the $NO_2$ annual mean AQO of 40 µg $m^{-3}$ are shown in **bold**.

$NO_2$ annual means in excess of 60 µg $m^{-3}$, indicating a potential exceedance of the $NO_2$ hourly mean AQS objective are shown in **bold and underlined**.

Means for diffusion tubes have been corrected for bias.

All means have been “annualised” in accordance with LLAQM Technical Guidance if valid data capture for the calendar year is less than 75% and greater than 25%.

Results have been distance corrected where applicable.

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

(b) data capture for the full calendar year (e.g., if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%).

Neither of the two automatic monitoring stations exceeds the annual AQ objectives of 40 µg m-3. Therefore, the annual objective has been achieved. The hourly $NO_2$ objective was also achieved at both monitoring locations.

All the diffusion tube results have been appropriately bias adjusted, using the Gradko Environmental national adjustment factors. Exceedances of the annual AQ objective of 40 µg m-3 is highlighted in bold. None of the passive monitoring locations (diffusion tubes) exceed the air quality objective but the Dagenham Heathway (DT4) was very close to the annual air quality objective. There is no exceedance of the annual AQ objective at any of the new additional monitoring locations.

Most of the data presented represents monitoring results for a 12-month period (January – December) and tubes are exposed in accordance with the UK Defra guidance LAQM TG (16).

**Table E. $NO_2$ Automatic Monitoring Results: Comparison with 1-hour Mean Objective, Number of 1-Hour Means > 200 µg $m^{-3}$**

| Site ID | Valid data capture for monitoring period %([a]) | Valid data capture 2022 %([b]) | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|---|---|---|
| (BG1) | - | 92 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| (BG2) | - | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**Notes**

Results are presented as the number of 1-hour periods where concentrations greater than 200 µg $m^{-3}$ have been recorded.

Exceedance of the $NO_2$ short term AQO of 200 µg $m^{-3}$ over the permitted 18 hours per year are shown in **bold**.

If the period of valid data is less than 85%, the 99.8th percentile of 1-hour means is provided in brackets.

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

(b) Data capture for the full calendar year (e.g., if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%)

Table E shows that there have been no exceedances of the hourly $NO_2$ objective in 2022.

The 2022 annual Mean $NO_2$ Concentration in the London Borough of Barking and Dagenham is attached to this report (Appendix B).

**Table F. Annual Mean $PM_{10}$ Automatic Monitoring Results (µg $m^{-3}$)**

| Site ID | Valid data capture for monitoring period %(a) | Valid data capture 2022 %(b) | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|---|---|---|
| (BG2) | - | 98 | 20 | 20 | 19 | 18 | 18 | 18 | 18 |

## Notes

The annual mean concentrations are presented as µg $m^{-3}$.

Exceedances of the $PM_{10}$ annual mean AQO of 40 µg $m^{-3}$ are shown in **bold**.

All means have been "annualised" in accordance with LLAQM Technical Guidance, if valid data capture is less than 75% and more than 25%.

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

(b) Data capture for the full calendar year (e.g., if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%).

There is no exceedance of the annual $PM_{10}$ objective in 2022.

**Table G. $PM_{10}$ Automatic Monitoring Results: Comparison with 24-Hour Mean Objective, Number of $PM_{10}$ 24-Hour Means > 50 µg $m^{-3}$**

| Site ID | Valid data capture for monitoring period %[(a)] | Valid data capture 2022 %[(b)] | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|---|---|---|
| (BG2) | - | 98 | 4 | 4 | 0 | 6 | 3 | 2 | 2 |

**Notes**

Exceedances of the $PM_{10}$ 24-hour mean objective (50 µg $m^{-3}$ over the permitted 35 days per year) are shown in **bold.**

Where the period of valid data is less than 85% of a full year, the 90.4th percentile is provided in brackets.

(a) data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

(b) data capture for the full calendar year (e.g., if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%).

The 24-hour mean objective was not exceeded either.

## Table H. 2022 $SO_2$ Automatic Monitoring Results: Comparison with Objectives

| Site ID | Valid data capture for monitoring period %[(a)] | Valid data capture 2022 %[(b)] | Number of 15-minute means > 266 µg $m^{-3}$ | Number of 1-hour mean > 350 µg $m^{-3}$ | Number 24-hour mean > 125 µg $m^{-3}$ |
|---|---|---|---|---|---|
| (BG1) | - | 88 | 0 | 0 | 0 |

### Notes

Results are presented as the number of instances where monitored concentrations are greater than the objective concentration.

Exceedances of the $SO_2$ objectives are shown in **bold** (15-min mean = 35 allowed a year, 1-hour mean = 24 allowed a year, 24-hour mean = 3 allowed a year).

If the period of valid data is less than 85%, the relevant percentiles are provided in brackets.

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

(b) Data capture for the full calendar year (e.g., if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%).

None of the $SO_2$ objectives were exceeded for the year 2022.

# 2. Action to Improve Air Quality

## 2.1 Air Quality Action Plan Progress

Table J provides a brief summary of London Borough of Barking and Dagenham progress against the Air Quality Action Plan, showing progress made this year.

**Table J. Delivery of Air Quality Action Plan Measures**

| Measure | LLAQM Action Matrix Theme | Action | Progress<br>• Emissions/Concentration data<br>• Benefits<br>• Negative impacts / Complaints |
|---|---|---|---|
| 1 | Monitoring and core statutory duties | Maintain the borough's monitoring network, and add an additional 20 diffusion tubes | • In addition to the 10 NOx Diffusion Tubes deployed July 2020, 20 additional NOx tubes were added from October 2021 and in the year 2022, we were able to have a full year monitoring data with 100% data capture at twenty four of the twenty-eight monitoring locations, 91.7% at three, 83.3% at two and 75% at one of the remaining monitoring locations. |
| 2 | Monitoring and core statutory duties | Work with and support relative emerging AQ monitoring projects to integrate new/modern monitoring techniques, including the £1m C40 project delivered in partnership with the GLA. | • In 2022, LBBD working with the GLA, and 'Breathe London' monitoring network installed additional 4 AQ monitoring sensors in the borough.<br>• Three were installed in March and the final one in May 2022.<br>• Details of this were provided on the Council website for public data dissemination and communication as well as covered in the Barking & Dagenham post - local newspaper.<br>• https://www.barkinganddagenhampost.co.uk/news/20904142.real-time-barking-dagenham-air-pollution-data-displayed-digital-screens/<br>• And another local paper |

| Measure | LLAQM Action Matrix Theme | Action | Progress<br>• Emissions/Concentration data<br>• Benefits<br>• Negative impacts / Complaints |
|---|---|---|---|
| | | | • https://www.lbbonline.com/news/clear-channels-digital-screens-help-monitor-londons-air-quality<br>• And smart cities website<br>• https://www.smartcitiesworld.net/air-quality/air-quality/london-borough-integrates-air-quality-monitors-with-digital-screens-7540 |
| 3 | Monitoring and core statutory duties | IPPC duties and inspections under the Environmental Permitting Regulations 2010 | • The council continue to deliver its statutory obligations regarding this action.<br>• Annual data statistical return on environmental permitting functions returned to Defra including number of permitted processes (A2, Schedule 13 and Part B processes) in 2022. |
| 4 | Emissions from developments and buildings | Raising awareness of and enforce the borough's Smoke Control Zone (SCZ). To include: an awareness campaign using Communications Team media platforms and active enforcement | • No recent update beyond the one reported in the last report for this action below.<br>• Comms on SCZ not undertaken however Comms on Clean Air Day undertaken whilst our enforcement officers continue to investigate complaint of smoke nuisance. |
| 5 | Emissions from developments and buildings | Ensuring emissions from construction are minimised. All major developments must carry out an Air Quality Assessment in accordance with the GLA's guidance | • 100% of major planning applications adjoined with AQ. assessments, or conditioned. Gained through local policy mechanism. |
| 6 | Emissions from developments and buildings | Include Greater London Authority (GLA) guidance on environmental and construction best practices into BeFirst/LBBD and other major developments | • All major planning applications conditioned with GLA best practice guidance in 2022. |
| 7 | Emissions from development and building | Ensuring enforcement of non-road mobile machinery (NRMM) air quality policies. Include NRMM requirements within local planning guidance. | • NRMM is part of the Local Plan included into Regulation 19. All relevant planning applications in 2022 include NRMM conditions with 29 of the sites in the borough also registered on GLA NRMM website for the year. |

| Measure | LLAQM Action Matrix Theme | Action | Progress<br>• Emissions/Concentration data<br>• Benefits<br>• Negative impacts / Complaints |
|---|---|---|---|
| | | Planning conditions imposed asking for NRMM compliance for all relevant major developments. | • Of the 20 sites audited for NRMM in 2022, 16 of the sites were compliant whilst 4 sites were already completed. |
| 8 | Emissions from development and building | Reducing emissions from CHP by ensuring that air quality as well as carbon emissions are considered when assessing planning applications or where existing schemes require new or upgraded heat sources | • We continue to maintain the register of CHPs plant within the borough. |
| 9 | Emissions from development and building | Enforce the GLA 'Air Quality Neutral' (AQN) policy or any preceding changes to this regional measure to all major developments | • 77% of the major planning applications meet GLA policy on AQN whilst the remaining 23% not meeting the benchmark were required to include additional mitigation. |
| 10 | Emissions from development and building | Ensuring adequate appropriate, and well-located green space and infrastructure is included in new large-scale developments | • No recent update beyond the one reported in the last report for this action that we have received no further update from when AQAP was adopted, Feb 2021. |
| 11 | Emissions from developments and buildings | Ensure that planning and development teams implement policies on Healthy Streets at an early stage for larger developments (as defined by the GLA) | • Healthy Streets continue to be included into Local Plan Regulation 19. |
| 12 | Emissions from developments and buildings | Promoting and delivering energy efficiency and energy supply retrofitting projects in workplaces and homes through retrofit programmes such as Retrofit Accelerator and Cosy Homes.<br>LBBD to be zero carbon from Council operations (e.g., housing and fleet) by 2030, and zero carbon Borough wide by 2050 | • The Council is due to adopt its Zero Carbon Roadmap and Climate Change Action Plan at July Cabinet, but many of the workstreams mentioned in it are currently under way.<br>• The Cosy Homes scheme with EON delivered energy efficiency measures, such as loft, cavity and external insulation and solar panels to almost 2,000 homes between 2020/22, across tenure, saving more than 15tCO2e. This was largely funded by ECO3 and Green Homes Grant.<br>• The Council is now working with EON to deliver additional insulation and energy conservation measures to 350 properties through Green Homes Grant LAD3 and has launched its next |

| Measure | LLAQM Action Matrix Theme | Action | Progress<br>• Emissions/Concentration data<br>• Benefits<br>• Negative impacts / Complaints |
|---|---|---|---|
| | | | iteration of Cosy Homes delivering installs under ECO4 and the Great British Insulation Scheme.<br>• Deep retrofit pilots have begun on the Becontree Estate, funded in part by Social Housing Decarbonisation Demonstrator Fund, with 3 completed and 17 more underway.<br>• The Council have contracted to deliver Phase 1 of the Corporate Estate Retrofit Programme which will deploy ECMs across 15 of the most energy consuming buildings in the Council's buildings portfolio. This is expected to commence in June 2023. |
| 13 | Emissions from developments and buildings | Improve air quality in the Borough by delivering improvements to reduce building emissions and increase uptake of Decentralised Energy Networks | • The council continues to work towards reducing emission from new development by ensuring relevant conditions are recommend at the planning stage as well as ensuring energy efficient measures are adopted for the site energy source. Installation of biomass is discouraged whilst the use of solar panel and Air Source Heat pump are encouraged. |
| 14 | Emissions from developments and buildings | Participate in the Pan-London Non-Road Mobile Machinery registration campaign in conjunction with lead Borough (London Borough of Merton), to reduce emissions from construction vehicles in line with GLA guidance. | • We continue to maintain our membership of Pan-London Non-Road Mobile Machinery registration campaign.<br>• Of the 20 sites audited for NRMM in 2022, 16 of the sites were compliant whilst 4 sites were already completed. |
| 15 | Public health and awareness raising | Public Health department taking shared responsibility for borough air quality issues and implementation of<br>Air Quality Action Plan.<br>11a, Directors of Public Health (DPHs) regularly briefed on the scale of the problem in their area. | • Our colleagues in Public Health continue to deliver on their aspect of the AQAP in 2022.<br>• With the Air Quality Grant 2021/22, a new project called Community Air Quality: Breathing in Barking and Dagenham has been launched. It asks residents and workers in the borough to add their experiences of air quality to an online map: https://bd.communityairquality.com/. |

| Measure | LLAQM Action Matrix Theme | Action | Progress<br>• Emissions/Concentration data<br>• Benefits<br>• Negative impacts / Complaints |
|---|---|---|---|
| | | 11b, DPHs incorporate up to date air quality information in their Joint Strategic Needs Assessment<br>11c, Air Quality Action Plans are formally signed off by the DPH.<br>11d, At least one Consultant grade public health specialist with air quality responsibilities in their job<br>profile | • This project which is still on-going provides an opportunity for residents and workers in the borough to help guide the solutions, areas of interest, and direction of any future resources to help improve and raise awareness about local air quality and the environment in ways that work best for the borough.<br>• It is being delivered collaboratively by researchers at Imperial College London, a panel of resident Project Ambassadors, the LBBD Office of Environmental Protection and is funded by the Department for Environment, Food, and Rural Affairs (Defra).<br>• The adopted AQAP formally signed off by relevant colleagues.<br>• PH have staff who work on/have air quality responsibilities as part of their profile |
| 16 | Public health and awareness raising | Engage with local businesses and support access to business-specific funding schemes which promote,<br>sustainable transport, collaborative delivery and low emission procurement practices through business forums and newsletters distribution. | • The council continuing to engage with businesses on how to improve the local AQ as agreed in the council AQAP. |
| 17 | Public health and awareness raising | Develop and implement a communications strategy to<br>disseminate air quality information to raise awareness and encourage behaviour change – may include,<br>messages to residents with heart and lung diseases (working in partnership with local NHS services). E.g., re publicising the Mayor's pollution alerts, promotion of active travel/sustainable transport, green home grants and anti-idling messages etc. | • Clean Air Day disseminated via Comms in 2022.<br>• Anti-idling message sent out via Comm's (March 2021) continues to 2022.<br>see link Drivers urged to turn engines off to save the environment in LBBD.<br>• We have also sent a number of press releases out regarding air quality:<br>• https://www.lbbd.gov.uk/news/50-new-trees-will-be-a-tree-mendous-boost-for-the-borough-0 |

| Measure | LLAQM Action Matrix Theme | Action | Progress<br>• Emissions/Concentration data<br>• Benefits<br>• Negative impacts / Complaints |
|---|---|---|---|
| | | | • https://www.lbbd.gov.uk/news/largest-miyawaki-forest-in-europe-planted-by-volunteers-at-boroughs-forest-of-thanks-for-nhs<br>• https://www.lbbd.gov.uk/news/council-commits-to-multi-million-pound-investment-boost<br>• https://www.lbbd.gov.uk/news/barking-and-dagenham-council-backs-the-engine-off-every-stop-campaign<br>• https://www.lbbd.gov.uk/news/barking-and-dagenham-businesses-encouraged-to-turn-off-their-engines<br>• https://www.lbbd.gov.uk/news/east-london-council-continues-fight-against-air-pollution<br>• https://www.lbbd.gov.uk/news/council-encourages-residents-to-take-part-in-clean-air-day<br>• https://www.lbbd.gov.uk/news/drivers-urged-to-turn-engines-off-to-save-the-environment<br><br>• We continue to push messages out via social media, video with lead member, resident newsletter, which goes out to around 16,000 people and through the council's Neighbourhood Watch scheme. |
| 18 | Public health and awareness raising | Encourage schools to join the TfL STARS accredited travel planning programme. Promotes sustainable approach to active travel therefore reducing vehicle emissions and increasing physical activity. | • We have 37 schools actively working on their travel plans. Rose Lane primary School has won the Active Travel Heroes Regional Award for East London. |
| 19 | Public health and awareness raising | Air quality in and around schools: Apply to the funding made available through TfL for LIPs to deliver the recommendations from the 'school streets. | • In 2022, we now have 11 School Streets in operation, 2 in construction, and 7 more schools in design.<br>• Be First continues to conduct consultation on all schemes and has monitored the operation of the School Streets in place. |

| Measure | LLAQM Action Matrix Theme | Action | Progress<br>• Emissions/Concentration data<br>• Benefits<br>• Negative impacts / Complaints |
|---|---|---|---|
| | | | • New School Streets are implemented on an experimental basis, and residents will have six months to give their views on the School Streets.<br>• Generally, the feedback from schools and residents has been positive, and we have a waiting list of schools who have asked for a School Street.<br>• School Streets are funded by TfL and revenue made from existing School Streets. |
| 20 | Public Health and awareness raising | Use council lobbying power to increase/encourage local and regional action using a health in all policies approach.<br><br>Lobbying within the BHR and NEL partnerships (including NHS and LA) to encourage other partners to consider measures to improve air quality – including their staff, residents, in their procurements and their in-house services. Lobby and work with TFL to reduce NO2 & PM emissions from buses in LBBD, and to reduce air quality concentrations from TfL regulated roads. | • Environmental Health contributed to, and supported, the lobbying work undertaken by the East London AQ Cluster Group in response to the proposed changes consulted on within the Environment Bill, 2020 and has continue to do so in 2022. |
| 21 | Public Health and Awareness Raising | Submit responses to relevant government and regional consultations – ensure responses focus on reducing emissions of local air pollutants and CO2. | • Environmental Health contributed to, and continue to support, the lobbying work undertaken by the East London AQ Cluster Group in response to the proposed changes consulted on within the Environment Bill, 2020 and all other consultations in 2021 – 2022.<br>• The team also participated in various stakeholders meeting to discuss issues relevant to local air quality. |

| Measure | LLAQM Action Matrix Theme | Action | Progress<br>• Emissions/Concentration data<br>• Benefits<br>• Negative impacts / Complaints |
|---|---|---|---|
| 22 | Public Health and Awareness Raising | Continued implementation of the Barking Riverside Travel Plan, to accelerate uptake of cycling walking and sustainable transport. | • We have a Barking Riverside Transport Co-ordinator who assists in creating Travel Plans for Barking Riverside Limited and schools in the Barking Riverside area.<br>• The Barking Riverside Transport Co-ordinator also champions active travel for the schools in Barking Riverside, including promoting Cycle to School Week (October 2022), the Big Walk and Wheel (March 2023), and arranging cycle training. |
| 23 | Public Health and Awareness Raising | Prepare and deliver Council-wide (LBBD) and BeFirst Travel Plans encouraging sustainable transport modes for staff and visitors. | • No comment from BF transport. |
| 24 | Public Health and Awareness Raising | Deliver the 'Ways of Working' (LBBD Staff) Travel to Work Plan and implement deliverables for staff to travel more sustainably and safely (in response to Covid19) | • Ways of Working Travel plan still ongoing. |
| 25 | Delivery servicing and freight | Review of the process documentation templates (procurement strategy document, delegated authority documents and award contract documents) to include air quality requirements for reducing vehicle emissions. | • This measure is still on-going following the AQAP adoption in February 2021. |
| 26 | Delivery servicing and freight | Review, implementation, and approval of the 'contract rules' in tandem with Council legal department with a view to adding air quality requirements for reducing vehicle emissions. | • This measure is still on-going following the AQAP adoption in February 2021. |
| 27 | Delivery servicing and freight | Reducing emissions from deliveries to local businesses and residents. | • We secure on-site ECVP points on major applications in 2022 with 14 more electric vehicle Charge Points being installed to the existing three. |

| Measure | LLAQM Action Matrix Theme | Action | Progress<br>• Emissions/Concentration data<br>• Benefits<br>• Negative impacts / Complaints |
|---|---|---|---|
| | | Work with and support TfL to install rapid electric vehicle charging points to encourage low emission vehicles. | |
| 28 | Borough Fleet | Reducing emissions from council fleet. Undertake 'Grey' Fleet review with Energy Saving Trust to inform future vehicle choice and infrastructure | • Regarding the grey fleet, a review was undertaken by EST in 2020 and the Council's policies are being reviewed to follow their recommendations. |
| 29 | Borough Fleet | Investigate the feasibility of, and implement the best environmentally performing, alternative fleet vehicle fuel (e.g., Hydrogen, Electric, Gas-to Liquid) | • Further work is required on schemes around salary sacrifice for employees wishing to purchase EVs and the purchasing/leasing an EV carpool to support employees travel more cleaner, while on business for the Council. |
| 30 | Borough Fleet | Undertake an infrastructure and operational review for the Council fleet depot land space charging in the Borough to incentivise EV charging uptake at the workplace | • Infrastructure and operational review ongoing. |
| 31 | Borough Fleet | Undertake annual fleet audits with a vehicle replacement programme to show continued progress in phasing out older and more polluting vehicles by 2030 | • 14 new EV vehicles being purchased for Caretaking. Initial analysis of vehicles undertaken; infrastructure analysis being undertaken in parallel. |
| 32 | Borough Fleet | Complete an industry-recognised fleet driver training programme (e.g., Freight Transport Association) to improve driver/vehicle operations and reduce fleet emissions | • In January 2021 Fleet services undertook anti-idling training in conjunction with the pan-London (anti idling) scheme led by Camden – Nothing further. |
| 33 | Borough Fleet | 25% of total fleet vehicles to be fully electrified (Battery Electric Vehicle) by 2025.<br>Long term target to have Council operations zero carbon by 2030 including fleet vehicles being zero tailpipe emission or as close as | • 14 new Electric Vehicles to be purchased for Caretaking Department. |

| Measure | LLAQM Action Matrix Theme | Action | Progress<br>• Emissions/Concentration data<br>• Benefits<br>• Negative impacts / Complaints |
|---|---|---|---|
| | | possible to zero tailpipe emissions using Best Available Technology. | |
| 34 | Localised Solutions | 19a) Implement the published Green Infrastructure Strategy.<br>19b) Apply for Green Space Grants / Community Tree Planting<br>19c) Develop and implement a tree planting delivery programme which strategically targets high pollution areas (roads) where feasible | • **As regards action19a,** our Parks Commissioning is responsible for delivering the borough's Parks and Green Spaces Strategy and associated Action Plan which in turn supports the implementation of the borough's GI and Biodiversity Strategy.<br><br>• In addition to the ongoing delivery of flagship park development projects such as the Central Park Master Plan Soil Importation scheme and the Parloes Park Parklife. Parks Commissioning (Ranger Service) has delivered a diverse range of smaller scale park improvement projects. The projects delivered in the Dagenham Corridor by the Ranger Service in 2022 are: Installation of quality adventurous play and outdoor gym facilities at Eastbrookend Country Park. The outdoor gym was installed in February 2022 followed by the children's play area in June 2022.<br><br>• In August 2022 a new interactive sculpture trail was installed by the Ranger Service with funding from Eastbrook Ward Councillors.<br><br>• In 2022, through external fundings and working in partnership with Thames 21; we further reconnect the River Rom with its floodplain in Dagenham. In high flows, the river will flood into this newly connected area of floodplain, creating an area of seasonal wetlands, rich in wildlife including frogs, newts, dragonflies and water birds.<br><br>• We ran a series of free wildlife courses in the spring, with experts from the charity Froglife - including both classroom presentations and practical sessions. |

| Measure | LLAQM Action Matrix Theme | Action | Progress<br>• Emissions/Concentration data<br>• Benefits<br>• Negative impacts / Complaints |
|---|---|---|---|
| | | | • **As regards action 19b,** Tree planting delivered by Parks Commissioning in 2022 includes the following schemes:<br><br>• **URBAN PARKS planting schemes: Barking Park:** 30 standard trees, **Mayesbrook Park:** 62 standard trees**, Old Dagenham Park:** 78 standard trees and 1,975 whips**, Padnall Lake/Open space:** 20 standard trees**, Parsloes Park:** 30 standard trees and St **Chads Park:** 25 standard trees.<br><br>• **RANGER SERVICE planting schemes:**<br>• **Grant funding secured:**<br>• In 2022 secured funding from the Mayor of London's Rewilding London Grant for managing and creating habitat in SINC's. This totalled **£34,000.**<br>• **Ranger Service/SUGI Tree Planting:**<br>• In January 2022, **1900,** native trees were planted at Eastbrookend Country Park with local schools.<br>• In February 2022 the Ranger Service secured **8,000** native trees and planted them with the community in Parsloes Park.<br>• In March in partnership with SUGi we planted **1,400** native trees following the Miyawaki method to create an outdoor classroom at Eastbrook School.<br>• Again, in March a further **1400** native trees were planted at Castle Green Park next to the A13 following the Miyawaki Method adding to previous plantings.<br>• A further **4,000** native trees were planted in Parsloes Park following the Miyawaki method in September.<br>• **Total trees planted in 2022:** 16,700 planted by the Ranger Service with Partners SUGi. |

| Measure | LLAQM Action Matrix Theme | Action | Progress<br>• Emissions/Concentration data<br>• Benefits<br>• Negative impacts / Complaints |
|---|---|---|---|
| | | | • **As regards action 19c,** Parks Commissioning's remit is focused on the borough's parks and green spaces. However, whilst we haven't specifically delivered tree planting schemes which target high pollution areas (roads) we have delivered schemes (e.g., Castle Green tree planting) which directly support this objective, and which will in due course will contribute to air quality improvements in areas adjacent parks. |
| 35 | Localised Solutions | Continue to embed green infrastructure into LIP schemes. | • In 2022, the council completed Frizlands Road safety scheme where - tree, shrub and verge planting was implemented as part of the junction buildout in place of hard paving. |
| 36 | Localised Solutions | Low Emission Neighbourhood (LEN):<br>Continue to implement and project manage the TfL-funded 'Greening the Fiddlers' LEN in Becontree Heath,<br>Dagenham, in one of the GLA's Air Quality Focus Areas. | • The LEN project ended in 2022. However, the final tree planting at the Becontree Avenue shopping parade and on Stour Road will occur during the 22-23 planting season.<br>• There will be a continuation of the Dr Bike pop-up cycle hub that will become semi-permanent in spring 2023 with the installation of the 'Biking Becontree' cycle hub at Becontree Avenue shopping parade. |
| 37 | Cleaner Transport | Ensuring that Transport and Air Quality policies and projects are integrated.<br>37a) Head of Transport should sign off AQAP.<br>37b) Transport officers to attend air quality steering groups. | • Transport Officers continues to attend the air quality steering group meetings and are a key stakeholder in delivering the AQAP. |
| 38 | Cleaner Transport | Use parking policy to reduce private use vehicle emissions by reviewing borough parking permit fee banding and implement a policy to incentivise lower emission | • New Permit charges based on emissions introduced 2020/21. |

| Measure | LLAQM Action Matrix Theme | Action | Progress<br>• Emissions/Concentration data<br>• Benefits<br>• Negative impacts / Complaints |
|---|---|---|---|
| | | vehicles/ dis-incentivise higher emitting vehicles | |
| 39 | Cleaner Transport | Review parking policy to reduce the overall number of parking permits to single household/residential tenancy (de-incentivise higher number of cars p/house) | • This is currently under review as part of Parking Strategy 2023-2030. |
| 40 | Cleaner Transport | Introduce a policy to charge commercial vehicles parking overnight and at weekends in borough roads to reduce congestion and discourage commercial vehicles. | • Charges approved by Cabinet but legal information regarding implementation needs further investigation regarding traffic orders, signage etc. |
| 41 | Cleaner Transport | Review staff parking permits and implement a policy or management process to significantly reduce overall numbers, with the aim to reduce 'grey fleet' impacts | • Staff permits were reviewed in 2022. |
| 42 | Cleaner Transport | Installation of Ultra-low Emission Vehicle (ULEV) infrastructure to encourage low emission vehicles. e.g.<br>On-street Electric Vehicle Charging Points | • Be First are supporting the roll out of public EV charge points, which is being managed and delivered by Connected Kerb. Connected Kerb are currently in the process of applying for funding to implement 200 on-street charging points.<br>• Be First will be running a campaign to ask residents to 'request a charge point', this will help Connected Kerb, Be First and LBBD to decide where to locate the EV charging points, once funding is received. |
| 43 | Cleaner Transport | Require private developers to install Ultra-Low Emission Vehicle (ULEV) infrastructure as per the GLA London Plan for major residential and non-residential developments. E.g., electric vehicle charging points | • In 2022, the council continue to implement its ULEV infrastructure as required in the emerging Local Plan and as per existing planning policy.<br>• New developments have to install the required GLA London Plan EV charging points for any new on-site residential parking. |
| 44 | Cleaner Transport | Provision of infrastructure to support walking and cycling e.g., the development | • CFR10 Quietway from Barking Town Centre to Barking Riverside completed and continued to be maintained in 2022. |

| Measure | LLAQM Action Matrix Theme | Action | Progress<br>• Emissions/Concentration data<br>• Benefits<br>• Negative impacts / Complaints |
|---|---|---|---|
| | | of key strategic cycle routes including Barking Station to Chadwell Heath Station, cycle route CFR10 Barking Riverside to Ilford (via Barking Town Centre) and Heathway to Becontree Heath. Potentially 'Liveable Neighbourhoods' ambition for the Becontree Estates subject to TfL funding. | • The council continue to develop a new LBBD Cycling & Walking Strategy, which includes an indicative programme for infrastructure investment over the next 10 years to improve cycling & walking provision.<br>• Applied for TfL funding from the Cycling Network Development (CND) Fund to undertake in-depth studies/ designs of three new cycling routes and three programmes of route upgrades.<br>• Commissioned a Healthy Street study of Valance Avenue, which will include significant interventions to improve provisions for cycling & walking. |
| 45 | Cleaner Transport | Discourage unnecessary idling by road vehicles.<br><br>Participate in the Pan-London Anti-Idling campaign/project in conjunction with the London Borough of Camden and proactively enforce regulations to reduce idling vehicles.<br><br>Focus anti-idling at school sites/roads | • The council continue to involve in active participation in the Pan-London Anti-Idling campaign/project in conjunction with the London Borough of Camden.<br>• With the council "Local Schools for Local Children" project; the council has been very successful in its Borough wide school expansion programme in 2022.<br>• We are now in a position where school places are available much closer to home meaning that families will travel shorter distances to school as we hope this will encourage pupils to walk rather than be driven.<br>• Some travel distances are down from 5km to 2km which is far more manageable.<br>• Anti-idling information has been shared with all schools with a view to onward sharing with families and carers.<br>• Some schools have been more pro-active, please see School pupils back campaign urging parents to turn off engines \| Barking and Dagenham Post which is of course positive.<br>• Many schools are keen to develop their own "School Street" which has a significant impact on neighbourhood air quality.<br>• The BeFirst scheme pushes car parking away from the school and encourages walking. |

| Measure | LLAQM Action Matrix Theme | Action | Progress<br>• Emissions/Concentration data<br>• Benefits<br>• Negative impacts / Complaints |
|---|---|---|---|
| | | | • More schools are signed up and it should be noted that feedback from schools so far is not necessarily to do with the idling issue alone but also with success in controlling inconsiderate parking and dropping off at the school gates. |
| 46 | Cleaner Transport | Encourage behaviour change in transport modes to increase sustainable transport and decrease private car use:<br>a) Campaigns to promote walking to school<br>b) Campaigns to promote workplace travel plans | • Be First supported schools' participation in two active travel events in October 2022: Cycle to School Week and Walk to School Week.<br>• Be First are also supporting the 'Big Walk and Wheel' (April 2023) and 'National Walking Month' (May 2023).<br>• Be First have also provided support for schools to write a 'School Travel Plan'.<br>• 11 schools (12 sites) participating in WOW - the Walk to School Challenge promoting all forms of active travel to school. Funded by TfL and offered to existing and longlisted school street schools. |
| 47 | Cleaner Transport | Develop a long-term strategy for the A13 to help improve traffic congestion, improve air quality and enable sustainable growth.<br>Require full Environmental Impacts Assessments (EIA's) for A13 development proposals including;<br>replacement of the Lodge Avenue flyover by TfL. | • Be First are part of a new Strategic Working Group with TfL and Network Rail to plan for the future of transport in LBBD, including the A13.<br>• Be First have appointed a transport consultant to assess congestion and modelling of the A13 to help inform the Local Plan, and other future strategic studies for the A13 and surrounding areas. |
| 48 | Cleaner Transport | Work with the River Roding Trust (RRT), the Canal and River Trust or relevant bodies to raise awareness of<br>local air pollution emissions from waterways. Engage with canal boat owners to promote sustainability, cleaner fuel burning and anti-idling to reduce emissions from boats.<br>Two Boat Mooring sites in LBBD. | • Series of stakeholders meeting (officers from East London cluster group) and other London local authorities with publication were implemented in 2022 to address this measure. |

| Measure | LLAQM Action Matrix Theme | Action | Progress<br>• Emissions/Concentration data<br>• Benefits<br>• Negative impacts / Complaints |
|---|---|---|---|
| | | 1) near Hertford Road and Gurney Close IG11 8JY (narrow boat moorings only) and,<br>2) (static) barge mooring only, near Barking Creek<br>IG11 7BW (all electrically powered only). | |
| 49 | Cleaner Transport | 1) Promote World Car-Free day (22nd September) through Communications Department<br>2) Explore gaining funding though the Greater London Authority Mayor's Air Quality Fund (or other funding source) to promote car free days in LBBD streets<br>Explore allowing residents to apply for 'Play Streets' or similar that allow streets/roads to be closed from traffic and encourage community engagement | • Be First continuing to monitor and apply for funding opportunities, however the number of funding opportunities in the last three years have been fewer.<br>• We submitted a bid for 'Grow-back-greener' funding; however, the funding was oversubscribed, and we were not successful. |

# 3. Planning Update and Other New Sources of Emissions

## Table K. Planning requirements met by planning applications in London Borough of Barking and Dagenham in 2022

| Condition | Number |
|---|---|
| Number of planning applications where an air quality impact assessment was reviewed for air quality impacts | 16 |
| Number of planning applications required to monitor for construction dust | 21 |
| Number of CHPs/Biomass boilers refused on air quality grounds | 0 |
| Number of CHPs/Biomass boilers subject to GLA emissions limits and/or other restrictions to reduce emissions | 0 |
| Number of developments required to install Ultra-Low $NO_x$ boilers | 0 |
| Number of developments where an AQ Neutral building and/or transport assessments undertaken | 13 |
| Number of developments where the AQ Neutral building and/or transport assessments not meeting the benchmark and so required to include additional mitigation | 3 |
| Number of planning applications with S106 agreements including other requirements to improve air quality | 5 |
| Number of planning applications with CIL payments that include a contribution to improve air quality | 0 |
| **NRMM: Central Activity Zone, Canary Wharf and Opportunity Areas**<br>Number of conditions related to NRMM included.<br>Number of developments registered and compliant.<br>Number of audits<br>% of sites unregistered prior to audit<br>Please include confirmation that you have checked that the development has been registered with the GLA through the relevant NRMM website and that all NRMM used on-site is compliant with Stage IV of the Directive and/or exemptions to the policy. | N/A |
| **NRMM: Greater London (excluding Central Activity Zone, Canary Wharf and Opportunity Areas)**<br>Number of conditions related to NRMM included.<br>Number of developments registered and compliant.<br>Number of audits<br>% of sites unregistered prior to audit<br>Please include confirmation that you have checked that the development has been registered at www.nrmm.london and that all NRMM used on-site is compliant with Stage IIIB of the Directive and/or exemptions to the policy. | 18<br>Whilst there are 29 sites in the borough registered on GLA NRMM website for the year, 20 of the sites were audited for NRMM in 2022, out of which16 of the sites were compliant whilst 4 sites were already completed. |

Records of the above information on planning applications are kept in the London Borough of Barking and Dagenham internal database called Flare. This is also duplicated in the Environmental Protection Team planning folder for officers' comments and recommendations.

The council received 16 major planning applications that required AQ assessment in 2022. The NRMM record is from the annual audit report submitted to the council through its membership of Pan London NRMM as well as from the registered information on the nrmm.london website for the council.

### 3.1 New or significantly changed industrial or other sources.

No new sources identified.

# 4. Additional Activities to Improve Air Quality

## 4.1 London Borough of Barking and Dagenham Fleet

We cannot provide details of how many a) zero emission and b) zero emission capable vehicles that are within our borough's fleet, and what percentage of the fleet these represent. However, from our 2020 AQ Annual Status Report, 7 new Electric Vehicles was said likely to be purchased for internal departmental use in 2021 whilst further 14 new Electric Vehicles was to be purchased for our Caretaking Department in 2022.

## 4.2 NRMM Enforcement Project

We can confirm that London Borough of Barking and Dagenham will continue to support the NRMM Enforcement project in 2023 – 24.

## 4.2 Air Quality Alerts

We can confirm that London Borough of Barking and Dagenham did not sign up for *air*TEXT, but its AQ direct alerts service can be accessed through the UK-AIR available through the link below on our website.

https://uk-air.defra.gov.uk/forecasting/locations?q=barking%20and%20dagenham

# Appendix A Details of Monitoring Site Quality QA/QC

## A.1 Automatic Monitoring Sites

In 2022, The automatic monitoring sites routine calibrations were undertaken by Enviro Technology for the full year monthly whilst LSO duties, Audits and service/upkeep/maintenance was also contracted to the same company (Enviro Technology).

$PM_{10}$ Monitoring Adjustment

No $PM_{10}$ monitoring adjustment was done in 2022.

## A.2 Diffusion Tubes

• Gradko is responsible for supplying and analysing the tubes.

• TEA 50/50

• Confirmation is given that Gradko follows the procedures set out in the Practical Guidance.

• National Bias adjustment factor of 0.82 of the spreadsheet versions issued 03/2023 was used.

### Discussion of Choice of Factor to Use

For the Bias adjustment factor, the national figure was used as the survey consists of tubes exposed over a range of settings, which differ from the co-location site, (see TG16 Box 7.11).

### Table L. Bias Adjustment Factor

| Year | Local or National | If National, Version of National Spreadsheet | Adjustment Factor |
|---|---|---|---|
| 2022 | National | 03/23 | 0.82 |
| 2021 | National | 03/22 | 0.83 |
| 2020 | National | 06/21 | 0.82 |

| Diffusion Tube Bias Adjustment Factors 03/23 Issue of the Spreadsheet | | | | |
|---|---|---|---|---|
| | | | New (03/22) Factor | |
| Laboratory | Method | Year | No. of Studies | Factor |
| Gradko | 50% TEA in acetone | 2022 | 14 | 0.82 |

# Local Bias adjustment Factor using Rush Green Primary School

## Checking Precision and Accuracy of Triplicate Tubes

AEA Energy & Environment
From the AEA group

| Diffusion Tubes Measurements | | | | | | | | | | Automatic Method | | Data Quality Check | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Period | Start Date dd/mm/yyyy | End Date dd/mm/yyyy | Tube 1 $\mu gm^{-3}$ | Tube 2 $\mu gm^{-3}$ | Tube 3 $\mu gm^{-3}$ | Triplicate Mean | Standard Deviation | Coefficient of Variation (CV) | 95% CI of mean | Period Mean | Data Capture (% DC) | Tubes Precision Check | Automatic Monitor Data |
| 1 | 05/01/2022 | 01/02/2022 | 29.9 | 31.0 | 29.8 | 30 | 0.7 | 2 | 1.6 | 37.4 | 100 | Good | Good |
| 2 | 01/02/2022 | 01/03/2022 | 19.5 | 15.5 | 17.4 | 17 | 2.0 | 11 | 4.9 | 16 | 100 | Good | Good |
| 3 | 01/03/2022 | 05/04/2022 | 19.1 | 19.4 | 19.2 | 19 | 0.2 | 1 | 0.4 | 23.4 | 99 | Good | Good |
| 4 | 05/04/2022 | 03/05/2022 | 12.8 | 13.4 | 12.7 | 13 | 0.4 | 3 | 0.9 | 15.1 | 99 | Good | Good |
| 5 | 03/05/2022 | 07/06/2022 | 13.5 | 13.2 | 12.8 | 13 | 0.4 | 3 | 0.9 | 13 | 100 | Good | Good |
| 6 | 07/06/2022 | 05/07/2022 | 10.3 | 8.7 | 10.2 | 10 | 0.9 | 9 | 2.2 | 10 | 100 | Good | Good |
| 7 | 05/07/2022 | 02/08/2022 | 10.8 | 10.5 | 9.9 | 10 | 0.5 | 4 | 1.1 | 10 | 100 | Good | Good |
| 8 | 02/08/2022 | 30/08/2022 | 12.8 | 13.4 | 13.0 | 13 | 0.3 | 2 | 0.8 | 12 | 100 | Good | Good |
| 9 | 30/08/2022 | 27/09/2022 | 14.1 | 14.9 | 14.9 | 15 | 0.5 | 3 | 1.1 | 15 | 100 | Good | Good |
| 10 | 27/09/2022 | 01/11/2022 | 17.3 | 18.0 | 16.8 | 17 | 0.6 | 3 | 1.5 | 16 | 100 | Good | Good |
| 11 | 01/11/2022 | 02/12/2022 | 17.8 | 16.7 | 20.1 | 18 | 1.7 | 10 | 4.3 | 17.7 | 69 | Good | or Data Capture |
| 12 | 02/12/2022 | 05/01/2023 | 20.8 | 22.6 | 20.9 | 21 | 1.0 | 5 | 2.4 | 14.9 | 42 | Good | or Data Capture |
| 13 | | | | | | | | | | | | | |

It is necessary to have results for at least two tubes in order to calculate the precision of the measurements

Overall survey --> Good precision | Good Overall DC

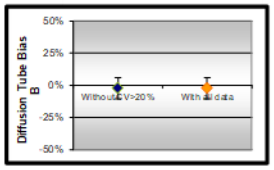
Site Name/ ID: Rush Green Primary School / (BG1)

Precision: 12 out of 12 periods have a CV smaller than 20%

(Check average CV & DC from Accuracy calculations)

| Accuracy (with 95% confidence interval) without periods with CV larger than 20% | |
|---|---|
| Bias calculated using 10 periods of data | |
| Bias factor A | 1.06 (0.97 - 1.16) |
| Bias B | -5% (-14% - 3%) |
| Diffusion Tubes Mean: | 16 $\mu gm^{-3}$ |
| Mean CV (Precision): | 4 |
| Automatic Mean: | 17 $\mu gm^{-3}$ |
| Data Capture for periods used: | 100% |
| Adjusted Tubes Mean: | 17 (15 - 18) $\mu gm^{-3}$ |

| Accuracy (with 95% confidence interval) WITH ALL DATA | |
|---|---|
| Bias calculated using 10 periods of data | |
| Bias factor A | 1.06 (0.97 - 1.16) |
| Bias B | -5% (-14% - 3%) |
| Diffusion Tubes Mean: | 16 $\mu gm^{-3}$ |
| Mean CV (Precision): | 4 |
| Automatic Mean: | 17 $\mu gm^{-3}$ |
| Data Capture for periods used: | 100% |
| Adjusted Tubes Mean: | 17 (15 - 18) $\mu gm^{-3}$ |




Jaume Targa, for AEA
Version 04 - February 2011

## A.3 Adjustments to the Ratified Monitoring Data

Short-term to Long-term Data Adjustment

None of the data for each of the monitoring sites need adjustment in line with Box 7.10 of the Local Air Quality Management Technical Guidance (TG16) because none of the data capture was below 75% for a full calendar year required.

Distance Adjustment

All monitoring locations are representative of public exposure and no distance adjustment is required apart from DT4 at 291 Dagenham Heathway.

## Table N. $NO_2$ Fall off With Distance Calculations

| Site ID | Distance (m): Monitoring Site to Kerb | Distance (m): Receptor to Kerb | Monitored Concentration (Annualised and Bias Adjusted (µg $m^{-3}$) | Background Concentration (µg $m^{-3}$) | Concentration Predicted at Receptor (µg $m^{-3}$) | Comments |
|---|---|---|---|---|---|---|
| DT4 | 1 | 6 | 39.57 | 18.4 | 31.9 | |
| DT18 | 1 | 2 | 36.83 | 22.9 | 34.9 | |
| DT25 | 2 | 4 | 37.49 | 24.6 | 35.4 | |

# Appendix B Full Monthly Diffusion Tube Results for 2022

**Table O. $NO_2$ Diffusion Tube Results**

| Site ID | Valid data capture for monitoring period %[a] | Valid data capture 2022 %[b] | Jan | Feb | Mar | Apr | May | June | Jul | Aug | Sept | Oct | Nov | Dec | Annual mean – raw data | Annual mean – bias adjusted |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DT1 | - | 83.3 | 45.06 | - | 44.06 | 39.33 | 34.31 | 26.00 | 28.41 | 34.37 | - | 35.12 | 35.31 | 40.95 | 36.29 | 29.76 |
| DT2 | - | 100.0 | 44.83 | 31.11 | 32.75 | 28.09 | 24.53 | 21.33 | 22.77 | 25.20 | 28.38 | 26.82 | 32.54 | 33.86 | 29.35 | 24.07 |
| DT3 | - | 100.0 | 50.95 | 36.82 | 42.80 | 34.90 | 31.12 | 22.81 | 27.00 | 28.74 | 33.71 | 32.05 | 39.30 | 38.66 | 34.91 | 28.63 |
| DT4 | - | 100.0 | 56.98 | 48.05 | 44.16 | 35.60 | 46.42 | 40.98 | 44.04 | 44.35 | 50.21 | 53.12 | 60.19 | 55.00 | 48.26 | **39.57** |
| DT5 | - | 100.0 | 59.10 | 46.93 | 46.93 | 36.69 | 43.04 | 38.80 | 35.90 | 38.69 | 38.50 | 43.57 | 38.97 | 46.88 | 42.83 | 35.12 |
| DT6a | - | 100.0 | 29.93 | 19.45 | 19.10 | 12.84 | 13.50 | 10.28 | 10.81 | 12.76 | 14.11 | 17.33 | 17.83 | 20.81 | 16.56 | 13.58 |
| DT6b | - | 100.0 | 30.97 | 15.52 | 19.38 | 13.35 | 13.16 | 8.74 | 10.51 | 13.44 | 14.90 | 17.95 | 16.68 | 22.55 | 16.43 | 13.47 |
| DT6c | - | 100.0 | 29.81 | 17.38 | 19.18 | 12.71 | 12.78 | 10.16 | 9.89 | 13.03 | 14.90 | 16.78 | 20.08 | 20.93 | 16.47 | 13.50 |
| DT7 | - | 100.0 | 49.49 | 30.98 | 41.34 | 40.23 | 33.60 | 27.03 | 33.53 | 37.45 | 38.55 | 37.00 | 40.22 | 41.40 | 37.57 | 30.80 |
| DT8 | - | 100.0 | 52.55 | 25.59 | 41.35 | 31.84 | 30.89 | 24.84 | 26.34 | 33.68 | 33.69 | 32.82 | 33.45 | 38.24 | 33.77 | 27.69 |
| DT9 | - | 100.0 | 46.25 | 29.15 | 40.50 | 28.48 | 26.71 | 26.76 | 29.04 | 31.13 | 34.15 | 33.00 | 35.47 | 34.46 | 32.92 | 27.00 |
| DT10 | - | 91.7 | 44.28 | 26.87 | 35.14 | 24.79 | 26.80 | 21.25 | 22.58 | 27.60 | 28.82 | - | 36.71 | 33.38 | 29.84 | 24.47 |
| DT11 | - | 91.7 | 53.93 | 38.77 | 35.59 | 28.36 | 30.58 | 27.03 | 25.81 | 26.97 | 32.23 | 37.72 | - | 39.69 | 34.24 | 28.08 |
| DT12 | - | 100.0 | 44.98 | 33.75 | 34.24 | 26.47 | 26.37 | 19.62 | 21.41 | 17.61 | 24.31 | 31.72 | 32.51 | 29.43 | 28.54 | 23.40 |
| DT13 | - | 75.0 | - | 30.89 | - | 27.23 | 21.47 | - | 18.96 | 23.30 | 24.73 | 29.60 | 27.39 | 34.50 | 26.45 | 21.69 |
| DT14 | - | 100.0 | 49.43 | 40.76 | 41.08 | 33.70 | 41.24 | 31.88 | 34.71 | 37.23 | 36.12 | 45.44 | 46.60 | 44.63 | 40.23 | 32.98 |
| DT15 | - | 100.0 | 43.02 | 21.62 | 35.19 | 25.72 | 21.16 | 16.98 | 19.00 | 22.17 | 24.20 | 28.79 | 26.72 | 32.12 | 26.39 | 21.64 |
| DT16 | - | 100.0 | 54.23 | 44.00 | 47.32 | 44.78 | 41.94 | 37.07 | 35.79 | 40.04 | 39.54 | 42.26 | 39.60 | 43.50 | 42.51 | 34.86 |
| DT17 | - | 100.0 | 48.09 | 30.23 | 33.52 | 25.80 | 20.31 | 20.48 | 20.16 | 23.49 | 24.56 | 28.64 | 31.49 | 34.50 | 28.44 | 23.32 |
| DT18 | - | 100.0 | 53.17 | 41.35 | 45.19 | 40.74 | 44.92 | 39.61 | 41.45 | 41.22 | 45.33 | 50.39 | 48.29 | 47.23 | 44.91 | 36.83 |
| DT19 | - | 100.0 | 59.84 | 37.02 | 38.56 | 31.53 | 29.09 | 27.68 | 30.05 | 30.80 | 30.00 | 36.12 | 40.39 | 41.07 | 36.01 | 29.53 |
| DT20 | - | 100.0 | 47.81 | 27.57 | 37.07 | 29.60 | 26.35 | 23.33 | 27.21 | 29.68 | 31.89 | 35.20 | 31.05 | 33.22 | 31.67 | 25.97 |
| DT21 | - | 100.0 | 56.93 | 43.56 | 44.31 | 41.11 | 39.19 | 33.79 | 37.15 | 43.40 | 42.93 | 47.32 | 47.92 | 46.75 | 43.70 | 35.83 |
| DT22 | - | 91.7 | 43.94 | 30.51 | 30.49 | 23.30 | 23.13 | 17.53 | 17.27 | 22.37 | 24.88 | 29.61 | 28.85 | - | 26.54 | 21.76 |
| DT23 | - | 100.0 | 55.73 | 43.15 | 39.95 | 34.25 | 39.51 | 32.67 | 32.44 | 34.83 | 39.61 | 42.34 | 42.52 | 42.76 | 39.98 | 32.78 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DT24 | - | 83.3 | 54.76 | 44.71 | 45.61 | - | 33.47 | 28.96 | 29.29 | - | 31.07 | 46.69 | 44.62 | 41.66 | 40.09 | 32.87 |
| DT25 | - | 100.0 | 54.00 | 48.18 | 51.63 | 35.34 | 45.53 | 44.30 | 42.10 | 44.58 | 39.18 | 47.56 | 52.72 | 43.57 | 45.72 | 37.49 |
| DT26 | - | 100.0 | 48.89 | 33.00 | 38.00 | 34.42 | 27.82 | 25.87 | 27.38 | 31.56 | 34.43 | 34.72 | 32.03 | 42.65 | 34.23 | 28.07 |
| DT27 | - | 100.0 | 46.00 | 34.63 | 43.40 | 32.06 | 32.17 | 27.38 | 28.95 | 27.00 | 34.13 | 41.06 | 40.02 | 41.29 | 35.67 | 29.25 |
| DT28 | - | 100.0 | 46.90 | 39.86 | 40.52 | 29.39 | 38.78 | 32.53 | 31.18 | 32.54 | 32.15 | 43.47 | 43.96 | 39.31 | 37.55 | 30.79 |

**Notes**

Concentrations are presented as µg $m^{-3}$.

Exceedances of the $NO_2$ annual mean AQO of 40 µg $m^{-3}$ are shown in **bold**.

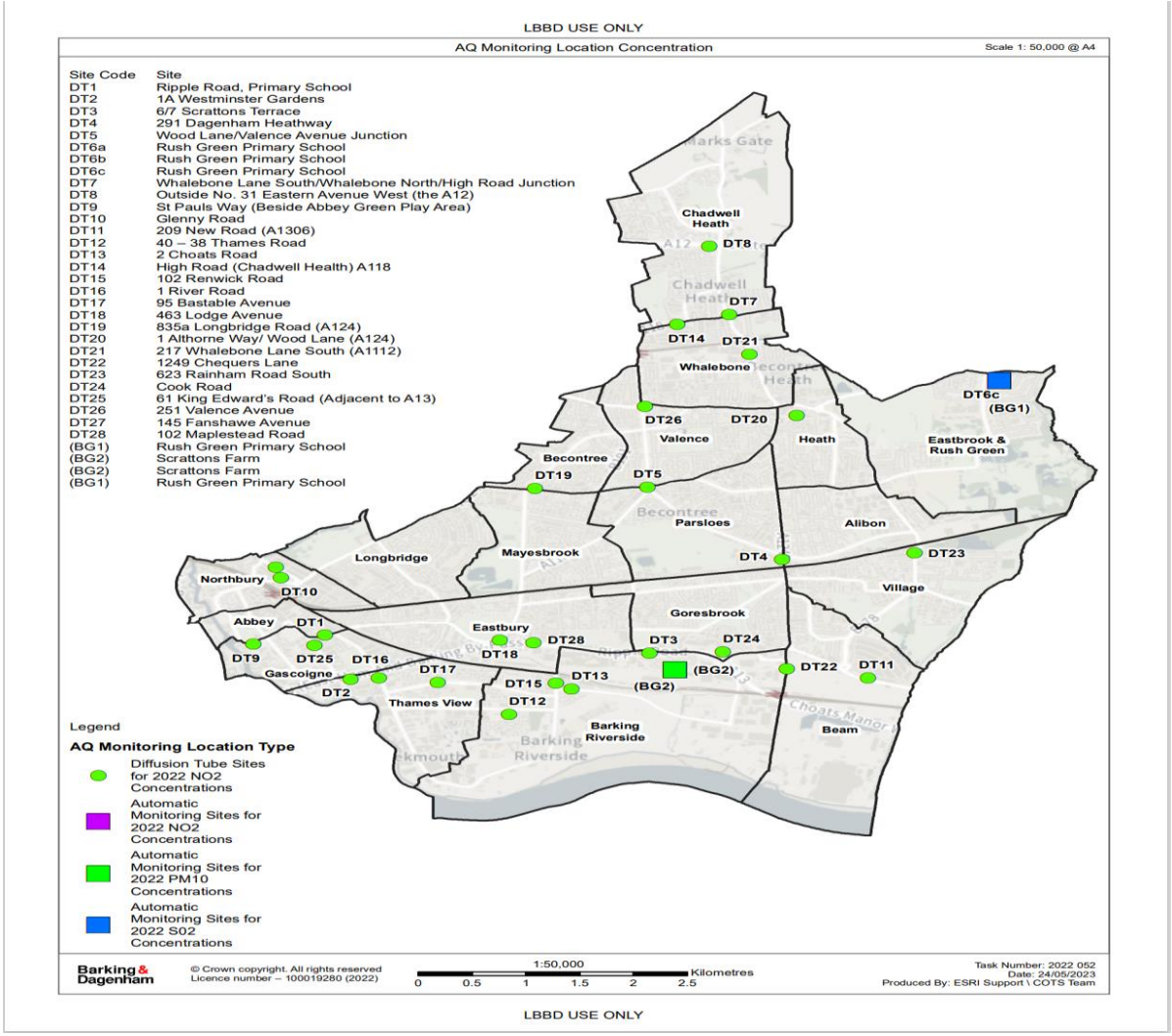
$NO_2$ annual means in excess of 60 µg $m^{-3}$, indicating a potential exceedance of the $NO_2$ hourly mean AQS objective are shown in **bold and underlined**.

All means have been “annualised” in accordance with LLAQM Technical Guidance if valid data capture for the calendar year is less than 75% and greater than 25%.

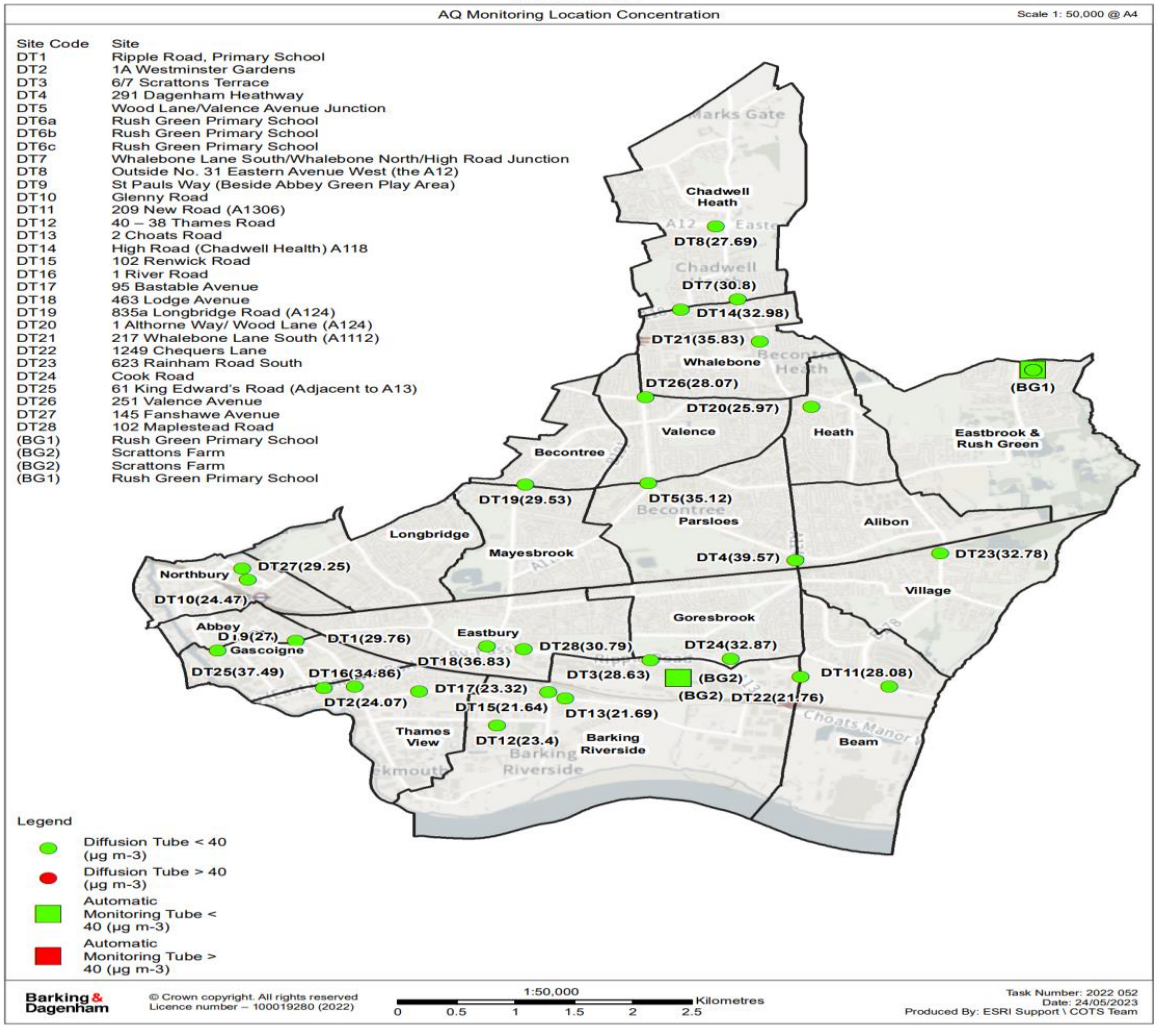
(a) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(b) data capture for the full calendar year (e.g., if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%).

## Appendix C: Monitoring location with annual concentration for pollutants in 2022



LBBD USE ONLY




LBBD USE ONLY