

# Annual Performance Report 2019

(Compliance with  
planning permission)



## Annex 1 Summary of CADP1 APR Requirements & References

Condition Requirements	Section	Format	Reference/ Source
<b>Approved PCCs</b>			
<b>31 NOMMS A.8 – Reporting</b> publish noise monitoring data in APR in June each year	Environment	Report in Appendix	Annex 2 NOMMS 2.1
<b>31 NOMMS – C3/2.7</b> produce and issue a community and airline annual report on 31 march each year	Environment	Report in Appendix	Annex 5 IPS Report
<b>44 Fixed Electric Ground Power (FEGP) – Para 4.3</b> monitoring of FEGP performance to be reported annually in APR	Environment	Report in Appendix	Annex 2 NOMMS
<b>58 Air Quality Management Strategy – Measure 1</b> Measure 1: Record availability of FEGP on all Stands	Environment	Report in Appendix	Annex 2 NOMMS Report 8.0 Annex 7 Air Quality Action Plan Progress Update
<b>58 Air Quality Management Strategy – Measure 2</b> Measure 2: Record APU use in line with Airfield Operating Instructions and forthcoming APU Strategy	Environment	Report in Appendix	Annex 7 Air Quality Action Plan Progress Update
<b>58 Air Quality Management Strategy – Measure 9</b> measure 9: all vehicles with airside vehicle permit comply with latest vehicle emissions standards – by June each year	Environment	Summary of AQMS progress	Annex 7 Air Quality Action Plan Progress Update
<b>58 Air Quality Management Strategy – Measure 10</b> measure 10: undertake routine annual, and periodic emissions testing for airside vehicles report findings to LBN annually (June)	Environment	Summary of AQMS progress	Annex 7 Air Quality Action Plan Progress Update
<b>58 Air Quality Management Strategy – Measure 13</b> Measure 13: Review and update the website to provide clear and concise information on the performance of the Air Quality Management Strategy	Environment	Report in Appendix	Annex 7 Air Quality Action Plan Progress Update
<b>Strategy</b>			
<b>58 Air Quality Management Strategy – Measure 15</b> Measure 15: Publish an article related to air quality and airport operations in “Airport Life”	Environment	Report in Appendix	Annex 7 Air Quality Action Plan Progress Update
<b>70 Waste Management Strategy – Para 4.7</b> LCA to report progress annually on the targets for the management and recycling of the wastes	Environment	Report in Appendix	Annex 8 Sustainability and Biodiversity Action Plan Progress Update
<b>60 Use of River Thames For Construction – Para 4.2</b> LCA to report to LBN number of vehicles taken off the road each year as part of APR	Surface Access	Summary of progress	APR Section 4.3.2

Condition Requirements	Section	Format	Reference/ Source
s106			
<b>Schedule 8 produce noise contours – Para 2 (30 Noise Monitoring System &amp; 31 NOMMS – Appendix F)</b> Publish noise contours each year as part of the APR (to include 54Db contour), noise contours for the Sound Insulation Scheme & produce annual daytime noise contours depicting air noise produced during an average summer day following defined method	Environment	Contours in Appendix and summary in text	Annex 2 NOMMS Appendix 7
<b>Schedule 9 purchase offer – Para 8.2</b> – any residential dwelling with any part of its external elevation which is situated within the actual 69 db contour for the purposes of the purchase scheme and within three months of that date they shall notify the owner/occupier of any dwelling so identified in the APR that they are entitled to benefit from the purchase scheme and invite applications from the owner/occupier under the purchase scheme.	Environment	Summary in text	Annex 2 NOMMS 10.2 and Appendix 10
<b>Schedule 9 reinspection scheme – Para 5.3</b> – a list of properties which have become eligible for the Reinspection Scheme in the preceding 12 months.	Environment	Report in Appendix	Annex 3
<b>Schedule 11 – Para 1.3 Provide list of existing employers</b>	Employment	Summary in text and schedule in appendix	Annex 9 Contractor/ Supplier Name and Postcode
<b>Schedule 11 – Para 1.5 Report job numbers and target performance to LBN and LCACC</b> (a) the percentage of jobs advertised at the Airport in the preceding calendar year to which residents living (i) in the Local Area; and (ii) the London Borough of Newham were recruited; (b) the percentage of jobs advertised by the Operator in the preceding calendar year to which residents living in (i) the Local Area; and (ii) the London Borough of Newham were recruited; (c) the numbers of full-time equivalent jobs at the Airport and the number of full-time equivalent jobs made available directly by the Operator; (d) the total numbers of full-time and part-time employees at the Airport and those employed directly by the Operator	Employment	Stats in text	a) Section 3.2.2 b) Section 3.3.2 c) Section 3.2.2 & 3.3.2 d) Section 3.2.2 & 3.3.2
<b>Schedule 11– Para 3.2 Maximise supply chain opportunities for LBN and local area businesses and report progress</b> (a) the number of contractors being used on site; and (b) details of those based in Newham and the remainder of the Local Area; (c) name and postcode of contractor/supplier; and (d) the aggregate values of different categories of contracts	Employment	Stats in text	a) Section 3.4.2 b) Section 3.5.1 c) Annex 9 Contractor/ Supplier Name and Postcode d) Section 3.5.1

Condition Requirements	Section	Format	Reference/ Source
<b>Schedule 11 – Recruitment Policy – Para 1.4</b> - to continue to provide the Council annually with details in writing of the policy adopted by the Operator to fill its job vacancies and the Operator shall consult the Council about such policy on not fewer than one occasion each year in conjunction with the Annual Performance Report	Employment	Summary in text	Annex 11 2019 updated recruitment policy
<b>Schedule 12 Value Compensation Scheme (VCS 1)</b> - which payments have been made under VCS 1	Financial Contributions	N/A	N/A for 2019
<b>Schedule 12 VCS 2</b> - which payments have been made under VCS 2 + The existence of the adopted VCS2 and its closing date will be publicised by its inclusion in the annual performance report which the Airport is obliged to publish every year and (within three months of the start of VCS2) through written notification of the owners of Eligible Interests in Eligible Sites, insofar as the Airport is able to identify them through Land Registry searches.	Financial Contributions	N/A	N/A for 2019
<b>Schedule 9 NIPS 1</b> - which payments have been made under NIPS 1	Financial Contributions	N/A	N/A for 2019
<b>Schedule 9 NIPS2</b> - which payments have been made under NIPS 2	Financial Contributions	N/A	N/A for 2019
<b>Annexure 2 – First Tier Scheme – para 3.1</b> - With effect from the Commencement of Development the Annual Performance Report shall specify the geographic area within which the properties which are eligible for this Scheme are situated.	Compensation	N/A	N/A for 2019
Annexure 4 – NIPS2 – para 3.8 the existence of NIPS2 (once adopted) will be publicised by its inclusion in the Annual Performance Report	Compensation	N/A	N/A for 2019
<b>Annexure 7 – Second Tier Noise Insulation Scheme – para 3.1</b> - the geographic area within which the properties which are eligible for this Scheme are situated.	Compensation	N/A	N/A for 2019
<b>Annexure 9 – VCS – para 5.1</b> written notification of the owners of Eligible Interests in Eligible Sites, insofar as the Airport is able to identify them through Land Registry searches.	Compensation	N/A	N/A for 2019
<b>Annexure 12 – Intermediate Tier Scheme – para 3</b> - specify the geographic area within which the properties which are eligible for this Scheme are situated.	Compensation	N/A	N/A for 2019
<b>Schedule</b> of Payments Made	Financial Contributions	Summary of annual payments in text	APR Section 6.1



Condition Requirements	Section	Format	Reference/ Source
<b>Conditions</b>			
<b>19 Review and Reporting on ANCS</b> A report as part of the APR on the performance and/or compliance with the approved ANCS during the previous calendar year	Environment	Summary in text and report in Appendix	APR Section 2.3 Annex 4 ANCS Report
<b>47 Auxiliary Power Units (/31 NOMMS - H3)</b> A report containing details of the use of Auxiliary Power Units at the Airport in the previous calendar year & adhere to a prescribed auxiliary power unit strategy, and report in the APR on use of the units each year	Environment	Summary in text and report in Appendix	Annex 2 NOMMS 8.0 Annex 2 NOMMS Appendix 7
<b>48 Ground Engine Running Strategy</b> A report as part of the APR on the performance and or compliance during the previous calendar year with the approved targets in the Ground Engine Running Strategy.	Environment	Summary in text and report in Appendix	Annex 2 NOMMS 5.2
<b>49 Ground Running, Testing and Maintenance Strategy</b> A Report as part of the APR on the performance and compliance during the previous calendar year with the targets in the GRTMS.	Environment	Summary in text and report in Appendix	Annex 2 NOMMS 5.3
<b>52 Ground Running Annual Performance Report (inc. 51 Ground Running Noise Limit) (/31 NOMMS – Appendix D2/D5)</b> A Ground Running Annual Performance Report as part of the APR including engine running summary logs to be produced monthly and for publication annually in APR & present annually (in APR) & the measurements and calculations showing whether ground running noise limit has been exceeded in previous year	Environment	Summary in text and report in Appendix	Annex 2 NOMMS 5.3
<b>56 Sustainability and Biodiversity Strategy</b> A report as part of the APR on the performance and compliance during the previous calendar year with the targets in the approved Sustainability and Biodiversity Strategy/Strategies.	Environment	Report as Appendix	Annex 8 Sustainability and Biodiversity Action Plan Progress Update
<b>57 Air Quality Monitoring</b> An annual report for each calendar year published and included in APR (1 June).	Environment	Report as appendix	Annex 7 2018-AQ Annual Monitoring Report
<b>59 Complaints About Environmental Impact</b> As part of the Annual Performance Report in relation to such complaints and actions in the preceding calendar year.	Environment	Summary in text	APR Section 2.13

# Annual Performance Report 2019

(Compliance with  
planning permission)



## Annex 2 Noise Annual Performance (NOMMS) Report

# LONDON CITY AIRPORT

## NOISE MANAGEMENT AND MITIGATION STRATEGY (NOMMS) REPORT 2019

### Report to

London City Airport  
The Royal Docks  
London E16 2PB

A11327\_05\_RP012\_2.0  
20 May 2020

#### Partners (members)

David Charles, Philippa Gavey, Giles Greenhalgh, Roger Jowett, David Trew

**Bickerdike Allen Partners LLP** is an integrated practice of Architects, Acousticians, and Construction Technologists, celebrating over 50 years of continuous practice.

**Architects:** Design and project management services which cover all stages of design, from feasibility and planning through to construction on site and completion.

**Acoustic Consultants:** Expertise in planning and noise, the control of noise and vibration and the sound insulation and acoustic treatment of buildings.

**Construction Technology Consultants:** Expertise in building cladding, technical appraisals and defect investigation and provision of construction expert witness services.

<b>Contents</b>	<b>Page No.</b>
1.0 Introduction .....	5
2.0 Combined Noise and Track Monitoring System.....	7
3.0 Quiet Operating Procedures .....	11
4.0 Incentives and Penalties Scheme .....	12
5.0 Control of Ground Noise .....	17
6.0 Airport Consultative Committee .....	21
7.0 Annual Noise Contours.....	22
8.0 Auxiliary Power Units .....	23
9.0 Reverse Thrust .....	24
10.0 Sound Insulation Scheme .....	27
11.0 Aircraft Movement Numbers .....	31

Appendix 1:	Flight Track Monitoring
Appendix 2:	NTK Status Reports
Appendix 3	London City Airport Community Fund Grants 2019
Appendix 4:	Incentives and Penalties
Appendix 5:	Summary of EFPS Data
Appendix 6:	Ground Running of Engines
Appendix 7:	Noise Contours
Appendix 8:	Auxiliary Power Unit Usage
Appendix 9:	Summary of Reverse Thrust Data
Appendix 10:	Sound Insulation Scheme Property Lists
Appendix 11:	Extract From Planning Conditions
Appendix 12:	Number of Aircraft Operating at LCA

*This report and all matters referred to herein remain confidential to the Client unless specifically authorised otherwise, when reproduction and/or publication is verbatim and without abridgement. This report may not be reproduced in whole or in part or relied upon in any way by any third party for any purpose whatsoever without the express written authorisation of Bickerdike Allen Partners LLP. If any third party whatsoever comes into possession of this report and/or any underlying data or drawings then they rely on it entirely at their own risk and Bickerdike Allen Partners LLP accepts no duty or responsibility in negligence or otherwise to any such third party.*

*Bickerdike Allen Partners LLP hereby grant permission for the use of this report by the client body and its agents in the realisation of the subject development, including submission of the report to the design team, contractor and sub-contractors, relevant building control authority, relevant local planning authority and for publication on its website.*

## 1.0 INTRODUCTION

The City Airport Development Programme (CADP1) planning application (13/01228/FUL) was granted planning permission by the Secretaries of State for Communities and Local Government and Transport in July 2016 following an appeal and public inquiry which was held in March/April 2016.

Condition 31 of this permission states that:

*“Prior to the Commencement of Development a Noise Management and Mitigation Strategy (NOMMS) shall be submitted to the Local Planning Authority for approval in writing.*

*The NOMMS shall be implemented as approved and thereafter the Airport shall only operate in accordance with the approved NOMMS.*

*Following implementation of the approved NOMMS, a report shall be submitted to the Local Planning Authority annually on 1 June (or the first working day thereafter) as part of the Annual Performance Report on the performance and compliance with the approved NOMMS during the previous 12 month period.*

*The approved NOMMS shall be reviewed not later than the 5<sup>th</sup> year after approval and every 5<sup>th</sup> year thereafter. The reviews shall be submitted to the Local Planning Authority within 3 months of such review dates for approval, and implemented as so approved.*

*The NOMMS shall include, but not be limited to:*

- *Combined Noise and Track Monitoring System*
- *Quiet Operating Procedures*
- *Penalties and Incentives*
- *Control of Ground Noise*
- *Airport Consultative Committee*
- *Annual Noise Contours*
- *Integrity of NOMMS*
- *Auxiliary Power Units*
- *Reverse Thrust and*
- *Sound Insulation Scheme”*

The NOMMS which addresses the above requirements was formally approved by the London Borough of Newham (LBN) on 18 May 2017 and was implemented on 18 August 2017.

This report reviews the performance and compliance with the NOMMS in 2019, as part of the Condition 31 requirements.

Information is also provided on the number of aircraft movements and noise factored<sup>1</sup> movements that have taken place at London City Airport (LCA) over the period 1<sup>st</sup> January 2019 up to and including 31<sup>st</sup> December 2019, to show compliance with Conditions 21 to 27.

---

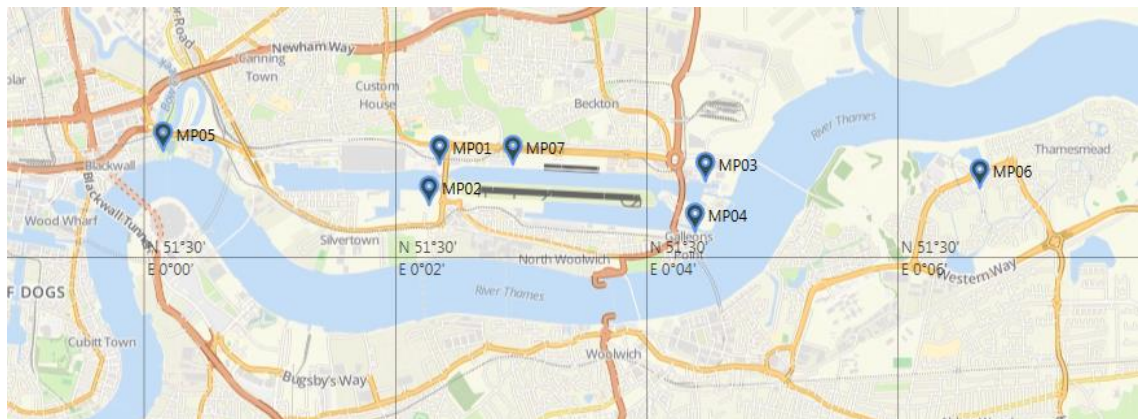
<sup>1</sup> The Noise Factored Scheme was superseded as of 29<sup>th</sup> March 2019. Data on noise factored movements has been presented for calendar year of 2019 for completeness and ease of presentation.



## 2.0 COMBINED NOISE AND TRACK MONITORING SYSTEM

### 2.1 Noise Monitoring

A continuous noise monitoring system was first installed and became operational at the airport in 1992, and a system of this type has been in place ever since. Since 1999 it has also included a flight track monitoring system and has been known as the Noise and Track Keeping (NTK) system. The noise monitoring system has since been upgraded and expanded and now comprises six fixed noise monitoring terminals (NMTs) and three mobile NMTs. The fixed NMTs (NMTs 1-6) are used to measure arrivals and departures of aircraft using the airport. One of the mobile NMTs (NMT 7) is used primarily for the monitoring of aircraft related ground noise. The other two mobile NMTs (NMTs 8 & 9) are used as and when required, either as back-up for the other NMTs or for off-site monitoring. The location of NMTs 1-7 is shown in Figure 1.



**Figure 1: Location of NMTs 1-7**

Noise data is collected from the NMTs and processed for the purposes of aircraft monitoring and also noise management. The NTK system is designed to ensure that a minimum correlation rate of 80% of all aircraft departures is achieved over the calendar year. Quarterly NTK status reports are issued to the London Borough of Newham, reporting on the correlation rate achieved over the quarter as discussed in 2.3 below.

The average departure and arrival noise levels measured in 2019, by aircraft type and airline, are reported elsewhere as part of the Aircraft Noise Categorisation Scheme (ANCS) summary.

### 2.2 Flight Track Monitoring

The flight track monitoring component of the system is permanently linked to the airport's radar feed, which is provided by the Air Traffic Control (ATC). Aircraft flight tracks are correlated with flight information and noise events. Based on this information, the airport have introduced a

web-based system (known as TRAVIS<sup>2</sup>) to share data from the flight track monitoring system with the public.

Flight tracks are capable of real-time inspection and are also stored for later processing and analysis. This allows deviations from the departure and arrival flight paths at the airport both in plan and elevation to be determined. The airport are required to maintain a log of 'off track' departures that do not stay within a certain distance of the agreed routes, with the aim of working towards achieving at least 95% of all departures within agreed swathes.

LCA do not currently operate noise preferential routes such as those that are in place at some other airports. In the absence of an agreed swathe to assess against, analysis has been carried out on the tracks flown in 2019 in order to identify any aircraft which appear to be 'off track'. This analysis is presented in Appendix 1 and summarised in this section.

### 2.2.1 Runway 27 Departures

Departures using Runway 27 initially go straight before turning right to head east. All Standard Instrument Departures (SIDs) follow the same route initially. To illustrate the spread of aircraft departing from Runway 27 during 2019, track plots are presented by quarter in Appendix 1.

For runway 27 departures, a 2 km wide gate has been set up in the track keeping system at the location of NMT 5.

In 2019 six departures failed to pass through the gate. These are detailed in Table 1.

Date	Departure Time	Aircraft Type	Airline	SID <sup>[1]</sup>
09/01/2019	16:10	E190	CFE	BPK
30/01/2019	13:37	E190	STK	LYD
04/03/2019	19:10	AT75	BCI	LYD
06/12/2019	17:16	E170	CFE	-
09/12/2019	19:37	AT72	BCI	-
10/12/2019	15:56	P180	XGO	-

<sup>[1]</sup> SID information was not recorded for the flights in December, due to a temporary issue that has now been resolved.

**Table 1: Runway 27 Off Track Departures, 2019**

<sup>2</sup> <https://travislyc.topsonic.aero/>

## 2.2.2 Runway 09 Departures

Departures using Runway 09 initially go straight before following departure routes that diverge soon after depending on which SID is being followed. There are two distinct initial routes; the DVR, CLN and LYD SIDs turn towards the north-east whereas the BPK and CPT SIDs turn towards the north west soon after departure. For the purpose of this analysis, these have been treated as two routes, a north-east one and a north-west one. Track plots are presented by quarter in Appendix 1.

For the north-east SIDs, a 2 km wide gate has been established at the location of NMT 6 and set up to coincide with the extended centreline of the runway, similar to the corresponding gate for NMT 5. In 2019, three departures following the DVR, CLN and LYD SIDs failed to pass through this gate before turning north. These are detailed in Table 2.

For the north-west SIDs, aircraft commence a turn as they track over NMT 6, so a 2 km wide gate has been established prior to the turn commencing. In 2019, only one aircraft following the BPK and CPT SIDs failed to pass through this gate. This is detailed in Table 2.

Date	Departure Time	Aircraft Type	Airline	SID
07/06/2019	20:12	BSC1 (A220)	SWR	DVR
07/06/2019	20:21	E170	CFE	CLN
25/07/2019	18:34	E190	CFE	DVR
18/09/2019	10:22	RJ85	EIN	BPK

**Table 2: Runway 09 Off Track Departures, 2019**

## 2.3 NTK Status

Prior to the implementation of NOMMS, under paragraph A6.0 of the approved Temporary Noise Monitoring Strategy, the airport was required to provide quarterly reports on the status of the NTK system (NMTs 1-4) to the local authority. Each report was required to record the daily operational status of each Noise Monitoring Terminal (NMT) together with the total monthly correlation rate of noise events to aircraft departures over a specified quarter year period.

Although no longer a planning condition, at the request of the London Borough of Newham (LBN), the airport have agreed to continue providing these reports, and also to include the status of NMTs 5 & 6.

Table A2.1 of Appendix 2 of this report details the daily operational status of each of NMTs 1-6 between 1<sup>st</sup> January 2019 and 31<sup>st</sup> December 2019. Table A2.2 sets out the monthly correlation

rate of noise events to aircraft movements for the same period, and Table A2.3 gives a summary of the NTK operational status for each quarter.

The noise monitoring system remained in continuous operation throughout the majority of the twelve month period between 1<sup>st</sup> January 2019 and 31<sup>st</sup> December 2019. Each noise monitoring terminal was in operation every day, with nine exceptions:

- Between 18<sup>th</sup> and 20<sup>th</sup> January, NMT 1 was not operational due to an issue with the power supply which required a manual restart.
- On 9<sup>th</sup> February there was a problem communicating with NMT 6 which meant that the data could not be downloaded.
- On 17<sup>th</sup> and 18<sup>th</sup> March, NMT 2 was not operational due to an issue with the power supply which required manual a restart.
- Between 20<sup>th</sup> and 22<sup>nd</sup> December, the connection to NMT 5 was lost following a regular calibration visit. The connection was re-established on 23<sup>rd</sup> December.

The target correlation rate (80%) for departures measured at NMTs 1-4 was met for 2019. A total of 39,058 aircraft departures were recorded, and an average correlation rate of noise events to aircraft departures of 93% was achieved.

A total of 39,199 (93%) departures and 39,407 (94%) arrivals were correlated at NMTs 5 and 6 in 2019.

### **3.0 QUIET OPERATING PROCEDURES**

The airport requires that every operator of aircraft adopt procedures which will produce the least noise disturbance compatible with safe operation, and where applicable, such procedures should follow any promulgated noise abatement routing for the airport. Where aircraft manufacturers have established special procedures for the purposes of reducing noise, these should be applied to operations at London City Airport, subject always to the safe operation of aircraft.

Quiet operating procedures at London City Airport include the following:-

- Minimum use of reverse thrust (see Section 9.0)
- Use of fixed electrical ground power where possible (see Section 8.0)
- Minimum use of auxiliary power units (see Section 8.0)
- Operation of a steep glide slope (5.5 degrees)
- An EFPS<sup>3</sup> system (see Section 5.0).

---

<sup>3</sup> Electronic Flight Progress Strips (EFPS) which has replaced the system of writing on paper Flight Plan Strips (FPLs) for Air Traffic Control personnel.

## 4.0 INCENTIVES AND PENALTIES SCHEME

### 4.1 NOMMS Scheme

The NOMMS includes an Incentives and Penalties Scheme (IPS) which has financial penalties for noisy departures. The IPS was implemented on 18 August 2017 and was intended to introduce a more equitable approach to determining penalties and credits by utilising the fixed noise monitors at either end of the runway (NMTs 5 and 6) to monitor departure noise levels. The IPS focuses on incentivising quieter operation of aircraft on departure and penalising noisy departures.

The scheme works as follows:

- The flyover noise level for a given departure is defined as the  $L_{Amax,s}$  noise level measured at the relevant NMT (NMT 5 for runway 27 departures, and NMT 6 for runway 09 departures).
- The measured noise levels are compared with the thresholds given in Table 3.
- If the Fixed Penalty Limit is exceeded, the airline responsible is fined £600<sup>4</sup> per dB(A) of exceedance, and one credit point is removed from the airline's credit account.
- If the Fixed Penalty Limit is not exceeded, but the Credit Removal Threshold is exceeded, one credit point is removed from the airline's credit account.
- If the Credit Award Threshold is not exceeded, one credit point is added to the airline's credit account.
- An airline may avoid a fixed penalty or credit removal for a particular flight, if they are able to provide a reasonable explanation for the noisy departure. Each exceedance event is considered on a case by case basis to establish whether or not a penalty or credit removal is applied.
- An airline's credit account is reset to zero at the beginning of each calendar year.

The current penalty and credit limits (noise levels) are set out in Table 3 below.

---

<sup>4</sup> Fines were not payable prior to 1st November 2018

Threshold Description	Aircraft Category	Flyover Noise Level, dB L <sub>ASmax</sub>	
		Runway 09	Runway 27
Fixed Penalty Limit	Turbofans	84	84 <sup>1</sup>
	Turboprops	78	78
Credit Removal Threshold	Turbofans	81	82
	Turboprops	75	77
Credit Award Threshold	Turbofans	73	72
	Turboprops	66.5	65.5

<sup>1</sup> If aircraft is between 100m and 300m north of the extended runway centreline, a 0.2 dB reduction is applied to the measured noise level

N.B. All noise limits are expressed as dB L<sub>ASmax</sub>

**Table 3: IPS Fixed Penalty Noise Limits and Credit Thresholds**

## 4.2 Community Fund

London City Airport has set up a Community Trust Fund which is administered by a Board of Trustees with an independent chair. LCA contribute £75,000 per year to the Fund in addition to any financial penalties incurred by airlines. This fund is open to community projects and charities from the local area to apply for funding. The most improved airline each year will partner the airport delivering the Fund.

The Community Fund grant provides a financial boost to local groups, such as mental health charities, disability groups, community gardens and sports teams as well as those providing family support, mentoring programmes and employability training. A total of more than £75,000 worth of grants have been awarded in 2019, supporting a broad range of initiatives that enable positive and significant change within and across diverse communities in East London.

The airport has received more than 200 applications in 2019 since announcing the Fund in May. The grantees were selected by a judging panel that includes representatives from the airport, local authorities and FlyBe, which joined the Fund's board of trustees following the airline's leading noise performance in 2018. They reported a number of common themes across all the recipients, that they either:

- build stronger, safer and healthier communities;
- create more sustainable and greener communities;
- raise aspirations of East Londoners; or
- create pathways into employment.

The Community Fund advertised its launch of the fund, see Figure 1, in local newspapers including, Newham & Stratford Recorder, Barking and Dagenham Post, Wharf Life and South London press & Mercury Paper. The fund was also advertised to local MPs and councillors to cascade the information and encourage charities and not-for profit organisations to apply.

**LONDON CITY AIRPORT  
COMMUNITY  
FUND**

To support local charities and organisations that represent inclusive and diverse communities across East London.

**£75,000**

**Funding Criteria**  
Application is open to charities and not-for-profit organisations.  
To qualify your project needs fit within the following categories:

- Building stronger, safer and healthier communities
- Creating more sustainable and greener communities
- Raising aspirations of East Londoners
- Creating pathways into employment

**Eligibility**  
See below the eligible locations:

Barking & Dagenham | Bexley | Epping Forest District Council | Greenwich | Hackney | Havering | Newham | Lambeth | Lewisham | Redbridge | Southwark | Tower Hamlets | Waltham Forest

**Apply Now**  
To apply, please fill out the application form on our website:  
[www.londoncityairport.com/corporate/responsible-growth/community-fund](http://www.londoncityairport.com/corporate/responsible-growth/community-fund)  
Contact us for more information:  
[Community.Fund@londoncityairport.com](mailto:Community.Fund@londoncityairport.com)  
For Terms and Conditions and submission deadlines, please visit our website.

**LONDON CITY AIRPORT**

**Figure 2: Example of Community Fund Advert**

The Community Fund held two rounds of grants, with the first being awarded in September and the second in December 2019. In order to decide the grantees, trustees board meetings were held and applicants were selected to be awarded a grant of up to £3,000. A robust scoring system was used in order to score the applications, based on the funding criteria they applied for, the number of beneficiaries for the amount requested along with how the local community would benefit from the fund. Taking all this into consideration, the trustees selected projects which will benefit the local community and enable positive impact. Details of the selected projects and the grants made are given in Appendix 3.

#### 4.3 Scheme Review

The NOMMS IPS is subject to an annual review. The review shall consider amongst other matters, the efficacy of the noise limits and threshold values, the suitability of the financial penalty, and the effectiveness of the noise threshold system as a component of the LCA NOMMS scheme. Written agreement shall be received from LBN prior to the introduction of any modifications to the system.

A review of the scheme was carried out in March 2020. No changes were made to the scheme.



#### 4.4 Reporting

A summary of the number of fixed penalties, credit awards and credit removals by month is given in Table 4. Full details of the fixed penalties, credit awards and credit removals for 2019 are given by airline in Appendix 4.

Month	Fixed Penalties (# aircraft)	Fixed Penalties (total value)	# Credits Removed	# Credits Awarded
January	0	£0	9	256
February	0	£0	7	286
March	0	£0	5	213
April	0	£0	6	317
May	0	£0	2	277
June	0	£0	5	270
July	0	£0	16	227
August	1	£600	6	126
September	0	£0	5	295
October	1	£600	18	316
November	0	£0	36	216
December	0	£0	34	222
<b>Total</b>	<b>2</b>	<b>£1,200</b>	<b>149</b>	<b>3021</b>

**Table 4: Monthly Penalties, Credit Removals and Credit Awards, 2019**

The two fixed penalties in 2019 were incurred by Flybe and AirGo, and were paid into the LCY Community Fund. LCA contacted the airlines involved to encourage noise levels to be reduced. Flybe did not respond. AirGo responded and engaged with LCA to review data such as climb profiles and engine power settings, however reductions in departure noise levels have not been achieved.

As reported in the Community and Airline Annual Report, the number of residual credits is given for the most commonly operating airlines in Table 5.

<b>Airline</b>	<b>Residual Credits 2019</b>	<b>Residual Credits 2018</b>	<b>Residual Credits Difference 2019 - 2018</b>
KLM Royal Dutch Airlines	145	117	28
Shell Aircraft	85	74	11
Swiss	497	494	3
Aerowest	40	38	2
TAP Portugal	28	28	0
GlobeAir	96	99	-3
Air Hamburg Private Jets	48	57	-9
Alitalia	150	171	-21
Lufthansa	66	96	-30
Aer Lingus	-62	-26	-36
British Airways	35	72	-37
Sun-Air of Scandinavia	180	221	-41
NetJets Europe	595	651	-56
Blue Islands	6	71	-65
Eastern Airways	8	119	-111
Xclusive Jet Charter Ltd	47	167	-120
BA Cityflyer	142	428	-286
Luxair	56	746	-690
Flybe	-2	793	-795
LOT Polish Airlines <sup>[1]</sup>	38	-	-
Air Antwerp <sup>[1]</sup>	185	-	-

<sup>[1]</sup> Airline did not operate at LCA in 2018 and therefore its improvement cannot be assessed.

#### **Table 5: 2019 Residual Credits Ranking**

The most improved airline has been determined by comparing the changes in residual credits from 2018 to 2019. Therefore, KLM Royal Dutch Airlines will partner LCA in delivering the Community Fund for 2020.

## **5.0 CONTROL OF GROUND NOISE**

### **5.1 General**

The airport seeks to ensure as far as reasonably practicable that every aircraft operator adopts the operating practice which generates the least amount of noise from aircraft taxiing, manoeuvring or holding on stand, at the runway, and prior to take off, subject to the requirement of ensuring the safe operation of the aircraft at all times, all in accordance with the procedures set out in the Ground Engine Running Strategy in compliance with CADP1 Planning Condition 48. This should involve the minimum power settings necessary and, in the case of propeller aircraft, pitch settings should as far as possible be those which produce the least propeller noise.

The introduction of nose-in parking at LCA is currently under consideration. This procedure is expected to have a negligible effect on the future ground noise levels around LCA. This is because in general terms, the ground noise generated by an aircraft parking and departing a stand when nose in manoeuvring will differ little, albeit it will be possibly marginally less at a receptor, as compared to when self-manoevring. It will be reviewed under the Ground Engine Running Strategy in compliance with CADP1 Condition 48 and assessed in the Ground Noise Study in compliance with CADP1 Condition 55.

An Electronic Flight Progress Strips (EFPS) system has been installed at LCA which provides the ability to monitor the time that aircraft operate engines on the ground, from engine start-up until the time of departure and following the time of landing until engine shut-down. The time of any engine ground running on the apron for maintenances is also monitored. Any excessive or unnecessary operation of aircraft engines is investigated by the airport.

### **5.2 Ground Engine Running Strategy**

Ground engine running relates to the use of aircraft engines from the time of engine start-up prior to departure, during taxiing and during holding, to the time of departure. Similarly, it relates to the time following an aircraft arrival from the time when it has reduced to taxiing speed on the runway, or when the aircraft turns off the runway, whichever occurs first, to the time when an aircraft switches off its engines on a stand.

The Ground Engine Running Strategy requires that ground engine running by aircraft is to be undertaken with the minimum amount of power and for the minimum amount of time as practically possible (except when operational or safety requirements dictate otherwise) to reduce noise emissions from the use of aircraft engines while on a stand, while taxiing or while

holding at any point around the airport, all in accordance with procedures and requirements set out in Airside Operating Instruction (AOI) 06 Apron Management.

The following parameters are required to be reported under the strategy:

#### 5.2.1 Average Engine Running time on Stands (ERS)

This is the time taken for an aircraft to operate its engines, once approval to start has been given, to the time of pushback from the stand, and is required to be reported for each airline and aircraft type, with a target to keep it below 7.5 minutes on average.

Where ERS times are found to exceed 7.5 minutes on average over a quarter on a regular basis for a given aircraft type and airline, the relevant airline will be contacted to seek an explanation and to identify ways of ensuring ERS time is reduced as far as practicable. The average time by aircraft type and airline for 2019 is given in Appendix 5.

Although the overall average ERS time for 2019 was 4 minutes and 30 seconds, there were two airline/aircraft combinations which operated at least one departure per week which on average exceeded an average ERS time of 7.5 minutes. These were the Cessna C510 operated by Globe Air (in all quarters) and the Cessna C550 operated by Xclusive Jet Charter Limited (in Q1). Therefore an explanation was sought from the relevant airlines to seek to reduce this time in the future.

Globe Air have responded and sought to reduce their ERS time. While it remains above the target, it has reduced by around 1 minute from when the issue was first raised with the airline.

Xclusive Jet Charter Limited had responded that they would seek to reduce their ERS time as far as practicable but that operational restrictions mean that it may not be possible to keep it below 7.5 minutes. They have since ceased trading.

#### 5.2.2 Average Taxi Time on Arrival (TTA)

This is the time between an aircraft arriving at LCA and the time it arrives on the stand. This information is recorded in the EFPS. The average time by aircraft type and airline is given in Appendix 5.

The overall average TTA for 2019 across all aircraft was 3 minutes and 49 seconds.

#### 5.2.3 Average Taxi Time on Departure (TTD)

This is the difference between the time of pushback on the stand and the time of departure. This information is recorded in the EFPS. The average time by aircraft type and airline is given in Appendix 5.

The overall average TTD for 2019 across all aircraft was 8 minutes and 4 seconds.

#### 5.2.4 Average Hold Time (HT)

This is the time that departing aircraft are held at a remote hold position. Hold time is recorded at other airports where remote holds are available. This is an area used where an aircraft is held off stand during a departure if (for example) the flight plan expires or the flight is delayed for another reason. This frees up the stand to allow other arriving aircraft to disembark. LCA have no such remote hold points so this measure isn't currently relevant.

### 5.3 Ground Running of Engines for Testing and Maintenance Purposes

The ground running of engines is required for testing and maintenance purposes. The airport is required to ensure that the noise level arising from aircraft ground running does not exceed the Ground Running Noise Limit of 60 dB  $L_{Aeq,12h}$ .

The running of aircraft engines is permitted only during the approved operating times for the airport. The running of engines at high power settings for the purposes of test and maintenance is carried out in accordance with the Ground Running Testing and Maintenance Strategy in compliance with CADP1 Conditions 49 and 50. Aircraft operators wishing to carry out high power engine runs must obtain prior approval from the Airfield Operations Duty Manager. Approval to start the engine run is given by ATC.

High powered engine runs have historically taken place in the engine ground running locations on stands 23 and 24. During 2019, construction activities were ongoing adjacent to stand 24, and consequently high powered engine runs were not permitted on stands 23 and 24 for much of the time due to safety reasons. Most high powered engine runs were therefore relocated to stand 22 during 2019, in accordance with the Ground Running Testing and Maintenance Strategy. The noise impact of engine runs on stand 22 will have been very similar to that on stands 23 and 24; the distance to dwellings is similar and all local properties that benefit from screening when engine runs occur on stands 23 and 24 will continue to do so when it occurs on stand 22. In addition there is a benefit for a small number of properties which are screened from stand 22 but not stands 23 or 24. Therefore the conservative assumption has been used to assess ground running on stand 22 as having the same resulting noise level at dwellings as ground running on stand 24. As detailed in the Ground Running Testing and Maintenance Strategy, this location will move east as the new CADP1 stands are built. A verification report to support this was submitted in January 2020 and approved by LBN.

The airport records written details of ground running including details of the number, duration and power settings of ground runs (High and Low) and the types of aircraft involved.

In the event that the Ground Running Noise Limit is approached within 1 dB, proposals for the amelioration of this issue, for example undertaking ground running on alternative stands, will be submitted to LBN for their approval within 3 months of the identification of this risk and, thereafter, reported in the Annual Performance Report. Such measures shall ensure that Ground Running complies with the Ground Running Noise Limit and, once approved by LBN, these measures shall be implemented within 6 months.

In the event that the Ground Running Noise Limit has been exceeded, proposals will be submitted to the Council for their approval for the carrying out of measures to ensure that Ground Running complies with the Ground Running Noise Limit and such approved measures shall be carried out in accordance with the approved time scale, all in accordance with the Ground Running Noise Limit Strategy.

Appendix 6 of this report sets out the official record of ground running of engines for test and maintenance for 2019 (Table A6.1), the summary of high power running for the same period (Table A6.2), and the prediction of ground running noise for comparison with the Ground Running Noise Limit. In 2019 LCA's ground running noise level was 55.2 dB  $L_{Aeq,12h}$  which is 4.8 dB below the Ground Running Noise Limit of 60 dB  $L_{Aeq,12h}$ . Therefore no further action is required.

## **6.0 AIRPORT CONSULTATIVE COMMITTEE**

The airport holds regular quarterly meetings with the London City Airport Consultative Committee (LCACC). The body of the committee is made up of representatives from the Council, public bodies, the airport and airport users, representatives for residents of local and neighbouring communities and non-voting attendees (present to provide advice to members as required, i.e. Metropolitan Police, Department for Transport).

The meetings are open and the committee's agendas and minutes are widely circulated and available on the LCACC website<sup>5</sup>. The meetings include reports on developments at the airport including changes in routes, flight and passenger numbers. There is a standing item on environmental issues including complaints, enquiries, noise monitoring and management and other requirements of the planning permission and Section 106 Agreement.

---

<sup>5</sup> <http://lcacc.org/meeting-papers-key-documents/recent-minutes-of-meetings/>

## 7.0 ANNUAL NOISE CONTOURS

The following noise contours are required to be produced as part of the APR, in order to assess eligibility under the various sound insulation schemes run by the airport:

- Actual average mode summer daytime for 2019
- Forecast average mode summer daytime for 2020
- Forecast average mode summer daytime for 2020, factored to account for the typical differences between the forecast and actual movements (referred to as “forecast reduced”)

Due to the ongoing coronavirus pandemic, there is a large amount of uncertainty relating to the 2020 forecast. However the forecast 2020 contours are only relevant to the sound insulation schemes if they are larger than the actual 2019 contours. As it is very unlikely that this will be the case, in light of the situation LBN have agreed that it is not necessary to produce 2020 forecast contours as part of this 2019 APR.

The 2019 noise contours, presented in Appendix 7, are produced at values of 57, 63, 66, and 69 dB  $L_{Aeq,16h}$ . Additionally, the 54 dB  $L_{Aeq,16h}$  contour is shown for information purposes, at the request of third parties during the CADP1 planning inquiry.

CADP1 Condition 33 requires that the area enclosed by the 57 dB  $L_{Aeq,16h}$  actual average mode summer daytime contour shall not exceed 9.1 km<sup>2</sup>.

The contours have been calculated by the Aviation Environmental Design Tool (AEDT) version 2d. This software, also supplied by the Federal Aviation Administration, has replaced the previously used Integrated Noise Model (INM), although the calculation procedures are similar. The areas of each of the contours presented in Appendix 7 are given in Table 6.

Contour Value, dB $L_{Aeq,16h}$	Contour Area, km <sup>2</sup>
	2019 Actual Summer Average Mode
54	14.2
57	8.0
63	2.1
66	1.1
69	0.6

**Table 6: Contour Area Results**

This demonstrates that LCA operated within their contour area limit in 2019. They are expected to continue to do so in 2020.



## 8.0 AUXILIARY POWER UNITS

A number of aircraft using the airport require from time to time the use of their onboard auxiliary power units (APUs). The needs for usage of these power units as opposed to portable ground power units or the airport's fixed electrical power are varied.

The typical need is to condition the aircraft cabin when temperatures become uncomfortable as fixed electrical power cannot normally be used for that purpose. In this case, the airport policy is that the maximum running time for an APU should not exceed 10 minutes prior to departure. Permitted use of the APU is contained in Airside Operating Instruction (AOI) 07.

The other need arises when there is an incompatibility between aircraft systems and the fixed electrical power supply. The need to maintain the same source of supply to avoid interference with aircraft on board computer systems has been raised by users. There is also the rare occurrence where for technical reasons the airport's fixed electrical supply is not available.

The airport has fixed electrical ground power (FEGP) at Stands 1-10 and 15. As previously advised in the APR and in discussions with London Borough of Newham (LBN), Stands 21-24 will be upgraded as part of the City Airport Development Programme (CADP) and a feasibility study on installing FEGP at Stands 12-14 has been submitted to LBN as per the airport's Air Quality Action Plan 2016-2018.

London City Airport currently has 9 mobile diesel ground power units (MGPUs) in operation, the oldest of which has had an engine rebuild so that it meets current European standards. These MGPUs service Stands 12-14 and 21-24 and other stands where necessary. Results from noise testing has shown that all units comply with the noise criteria set for mobile ground servicing equipment detailed within the IATA 910 – *Airport Handling Manual*<sup>6</sup>.

Appendix 8 sets out details of the aircraft types that may require use of their auxiliary power units (APU) to supplement the fixed ground power that is provided by the airport when an aircraft is on a stand on the apron.

---

<sup>6</sup> The standard is set that at a distance of 4.6 m, measured from the perimeter for the equipment, noise levels should be less than 85 dB.

## 9.0 REVERSE THRUST

The use of reverse thrust on the landing roll should be kept to the minimum required for the necessary deceleration of the aircraft and within the limits of the airline's standard operating procedures.

A new requirement as part of the CADP1 planning consent is that any instance of unusual or excessive use of thrust reversers will be investigated by the airport and a report generated. This will make reference to noise data collected at NMT 7, which has been installed for this purpose.

Noise events at NMT 7 are triggered by arriving aircraft. These are then correlated with the aircraft movement data. Many of these noise events are caused by arrivals which did not use reverse thrust, particularly those using runway 09. The loudest events are investigated to determine whether there were cases of unusual or excessive use of reverse thrust. When this is found to have been the case, the airport contacts the airline and seeks an explanation in order to minimise future occurrences.

BAP carried out a review of the NMT 7 data collected for the 12 month period from July 2017 to June 2018 in order to determine a suitable noise threshold above which events will be investigated. This has been defined as 88 dB  $L_{ASmax}$  for runway 09 arrivals and 90 dB  $L_{ASmax}$  for runway 27 arrivals.

27 aircraft arrivals exceeded these thresholds at NMT 7 in 2019. Details of these are presented in Table 7.

Date	Arrival Time	Runway	Aircraft Type	Airline	NMT 7 Noise Level, dB $L_{ASmax}$
04/02/2019	07:48	27	DH8D	LGL	91.4
05/02/2019	06:32	27	A318	BAW	91.2
13/02/2019	07:08	27	A318	BAW	91.6
15/02/2019	06:35	09	A318	BAW	90.1
18/02/2019	06:33	27	A318	BAW	90.5
21/02/2019	11:17	27	FA7X	ADN	91.9
05/03/2019	17:55	27	C56X	DCA	92.7
05/03/2019	18:41	27	FA7X	HBJ	90.2
14/03/2019	16:29	27	E190	CFE	90.7
24/04/2019	09:59	09	DA50	HBI	91.0

Date	Arrival Time	Runway	Aircraft Type	Airline	NMT 7 Noise Level, dB L <sub>ASmax</sub>
14/06/2019	19:59	27	F2TH	PHJ	90.6
15/06/2019	06:31	27	A318	BAW	90.1
21/06/2019	11:08	27	E135	KRH	90.7
04/09/2019	06:31	27	A318	BAW	90.4
30/09/2019	20:23	27	E190	KLM	90.4
07/10/2019	09:05	27	GLEK	NJE	91.2
11/10/2019	06:32	27	A318	BAW	90.8
17/10/2019	06:32	27	A318	BAW	90.9
25/10/2019	19:08	27	E190	TAP	90.0
26/10/2019	06:32	27	A318	BAW	91.2
10/11/2019	19:45	09	FA7X	SIO	88.6
28/11/2019	16:20	27	FA8X	GXI	90.4
28/11/2019	18:23	27	AT75	BCI	90.9
03/12/2019	07:40	27	A318	BAW	91.9
03/12/2019	18:16	27	AT75	BCI	92.6
10/12/2019	06:47	27	A318	BAW	91.4
12/12/2019	06:32	27	A318	BAW	91.2

**Table 7: Log of Potentially Unusual or Excessive Reverse Thrust Use, 2019**

LCA have contacted the airlines involved and received the following responses:

- LGL have advised that reverse thrust is not typically used but is occasionally required for safety reasons.
- BAW have advised that when there are adverse conditions, such as the runway being wet, then the A318 aircraft requires the use of reverse thrust for safety reasons.
- ADN advised that they didn't notice anything unusual about the flight on 21/02/2019 which generated a high reverse thrust noise level but will endeavour to keep reverse thrust usage to a minimum.
- DCA advised that they didn't notice anything unusual about the flight on 05/03/2019 but will endeavour to keep reverse thrust usage to a minimum.

- HBJ advised that for the flight on 05/03/2019 they were instructed by air traffic control to use Taxiway D or E and therefore required more reverse thrust than usual to enable this.
- CFE advised that reverse thrust used by the E190 flight on 14/03/2019 was a one off training event.
- BCI have responded that there was poor weather for the flights on 28/11/2019 and 03/12/2019 which likely contributed to the need for higher reverse thrust.
- TAP are no longer operating aircraft from the airport.

Where responses are not received within a month of notification, follow up emails are sent and the issue will be escalated with the airline if necessary.

The distribution of measured noise levels at NMT7 in 2019 are presented in Appendix 9 for reference.

## 10.0 SOUND INSULATION SCHEME

LCA are required to mitigate the impact of environmental noise on residential premises and public buildings as a result of airport operations. The Sound Insulation Scheme (SIS) offers the communities living close to the airport within the Scheme boundaries the opportunity to treat their homes and community buildings against noise.<sup>7</sup>

The airport previously operated a sound insulation scheme comprising a two tier system. Residential and Public Buildings became eligible under the scheme, subject to when they were built, when first exposed to air noise at the First Tier Eligibility Criterion of 57 dB  $L_{Aeq,16h}$ . Additional mitigation was offered at air noise exposure levels of 66 dB  $L_{Aeq,16h}$ .

As part of the CADP1 development, the airport improved the first tier of works, introduced an intermediate tier of treatment, and also upgraded the second tier to further protect those Residential and Public Buildings most affected by noise. The enhanced sound insulation scheme under CADP1 for Residential Buildings is summarised in Table 8 and described in more detail later in this section, alongside the other schemes in operation.

Scheme	Threshold ( $L_{Aeq,16h}$ )	Enhanced Scheme under CADP1
First Tier	57 dB	100% costs of secondary glazing or 100% costs of DG to existing single glazed properties, and acoustic vents
Intermediate Tier	63 dB	Secondary glazing and acoustic vents or £3000 (index linked) towards HPDG and acoustic vents
Second Tier	66 dB	100% costs of secondary glazing or HPDG in place of only a contribution to HPDG, and acoustic vents

DG – Standard thermal double glazing, HPDG – High (Acoustic) Performance double glazing

**Table 8: Sound Insulation Schemes – Residential Buildings**

No properties have become newly eligible for any of the schemes as shown in Appendix 10. This is a consequence of the actual contours for 2019 being smaller than previously forecast, and the ongoing coronavirus pandemic which means it is very unlikely the contours for 2020 will be any greater either.

<sup>7</sup> The full details of the Scheme (with CADP1) are documented within Annexures 2, 7 and 12 of the Section 106 Agreement dated 27th April 2016.

The first tier of works has been improved under CADP1 by ensuring any existing single glazed properties that are eligible under the scheme will be offered 100% of the cost for replacement standard thermal glazed windows or secondary glazing, whichever is preferred. Previously, only secondary glazing and acoustic vents were available to these single glazed properties. Residential premises in general will continue to be offered sound attenuating ventilators (acoustic ventilation) to provide background ventilation without the need to open windows.

The intermediate tier was a new requirement as part of the CADP1 permission. Under the intermediate tier works, for those residential properties that are already or become exposed to air noise at a level of 63 dB  $L_{Aeq,16h}$ , an offer of secondary glazing and acoustic ventilation will be made or alternatively, a contribution of £3,000 towards high performance acoustic double glazing and acoustic vents. Under this scheme, residents who prefer the high performance double glazing option may choose to treat only one or two rooms, such as those most affected by aircraft noise, as opposed to all rooms, to remain within the £3,000 budget available or they may use the £3,000 as a contribution towards more extensive works. Furthermore, this additional tier of works will be eligible to all existing dwellings exposed currently to 63 dB or more as well as any existing dwellings that come into the eligibility noise contour in the future.

For those most affected, that is those that become exposed to air noise at the Second Tier Eligibility Criterion of 66 dB  $L_{Aeq,16h}$ , they were previously offered improved secondary glazing or a monetary contribution of equivalent value towards high acoustic performance thermal double glazing, together with acoustic ventilation. The airport has enhanced the scheme under CADP1 to offer improved secondary glazing or a 100% contribution towards high performance double glazing, together with acoustic ventilation. This ensures that all of those most affected by noise are afforded the maximum noise protection opportunity. The airport will also inspect any previous treatments and rectify any damage caused by reasonable wear and tear.

An assessment of newly eligible properties is carried out every year as part of the Annual Performance Report and the eligibility boundaries are typically presented. In this 2019 APR there are no newly eligible properties and so instead the 2019 actual contours have been presented alongside the 2018 eligibility boundaries in Appendix 7. There are some small area where the 2019 actual contours are larger than the 2018 eligibility contours, although these contain no eligible properties.

The scheme is delivered to eligible properties in accordance with a timescale agreed with the local authority and set out in detail in the Section 106 agreement. The timescales for treatment are devised as far as reasonably possible to ensure that the scheme will be delivered and in place by the time that residents become exposed to noise of 57 dB  $L_{Aeq,16h}$  based on an average

summer day. Second Tier and Intermediate Tier properties that are exposed to higher levels of noise will be treated as a priority in the new scheme.

The noise contours are produced annually (using actual summer-period operational data), compliant with approved European calculation methodology. The noise contours are used, along with information on when the properties were built, to determine eligibility for sound insulation treatment.

The sound insulation requirements of all public buildings in community use within the 57, 63 and 66 dB  $L_{Aeq,16h}$  noise contours are assessed individually, based on the use of the building, the current and future levels of aircraft noise and recommended internal noise standards, and works agreed as necessary with the local authority.

Where new properties are granted planning consent within the airport's noise contours, the airport will encourage local planning authorities to incorporate published noise contours into decisions on new residential development, with a view to ensuring that acceptable noise levels will be achieved within new homes and other noise sensitive developments through the use of reasonable, robust and enforceable design standards.

## **10.1 Purchase Scheme**

Any eligible properties that fall within the 69 dB  $L_{Aeq,16h}$  noise contour will receive an offer from the airport to purchase the property at the open market value within 6 months of the owner/occupier making an application for the airport to do so<sup>8</sup>.

Any properties that are found to lie within the current 69 dB  $L_{Aeq,16h}$  noise contour will be identified and contacted in accordance with the Purchase Scheme's requirements. No properties fell within this contour in 2019.

## **10.2 Re-Inspection Scheme**

For those eligible residential properties that were treated under the scheme at least 10 years ago, a free inspection is offered and provided previous treatments are unaltered, rectification works will be undertaken where appropriate to bring the sound insulation up to the standard

---

<sup>8</sup>The full details of the Scheme are documented within Annexure 5 of the Section 106 Agreement dated 27 April 2016 (with CADP1) and within Part 12 of the Fourth Schedule and Part 14 of the Ninth Schedule to the Section 106 Agreement dated 9 July 2009 (without CADP1).

when the treatment was originally undertaken<sup>9</sup>. 39 properties have been identified for reinspection in 2020. A list of these properties is provided in Appendix 10.

### **10.3 Noise Insulation Payment Scheme (NIPS)**

Developments which have received planning permission but have not yet been built may be eligible to receive a payment under the NIPS. The aim of the NIPS is to compensate landowners and developers for the reasonable incremental costs of supplying and fitting additional noise insulation measures at certain proposed developments to mitigate against the noise effects of the increase in aircraft movements permitted by the Airport's Planning Permission. There is a NIPS relating to the 2009 planning permission as well as the CADP1 planning permission (known as NIPS2). No claims were made in 2019 under either scheme.

---

<sup>9</sup>The full details of the Scheme are documented within Annexure 6 of the Section 106 Agreement dated 27 April 2016 (with CADP1) and Part 1 of the Fourth Schedule to the Section 106 Agreement dated 9 July 2009 (without CADP1).



## **11.0 AIRCRAFT MOVEMENT NUMBERS**

Conditions 21 to 27 of the planning permission of July 2016, which are reproduced in Appendix 11, detail the maximum number of actual and noise factored movements that are permitted at the airport.

Under the Noise Factored Scheme, which was superseded by the ANCS as of 29<sup>th</sup> March 2019, all aircraft operating at LCA were required to be categorised by their departure noise levels into one of five noise categories. Only aircraft which had been approved by the Council and had been categorised in this manner, provisionally or otherwise, were permitted to land or depart the airport (excepting emergencies).

The 2016 planning permission allows up to 111,000 total aircraft movements per annum, including both scheduled and general aviation aircraft. The planning permission also contains specific limits on daily and weekly movements, as well as limits on the numbers of noise factored movements.

The airport is also required to record the numbers and types of aircraft that use the airport daily and submit aggregate figures to the Council on a quarterly basis. The daily records for the number of aircraft movements and noise factored movements in 2019 are presented in Appendix 12, where they are compared with the relevant daily, weekly and annual limits.

Appendix 12 also presents the number of aircraft movements that took place each day during the restricted early morning periods of 06:30 to 06:44 hours and 06:30 to 06:59 hours, during the last operating period (late evening) of weekdays and Sundays from 22:00 to 22:30 hours and on Saturdays from 12:30 to 13:00 hours.

The data shows that throughout 2019, LCA has operated within its planning consent with regard to the number of daily and annual aircraft movements, including those during early morning and late evening periods, as well as weekly and annual noise factored movements.

**Mike Pau**  
for Bickerdike Allen Partners LLP

**Nick Williams**  
Associate

**David Charles**  
Partner

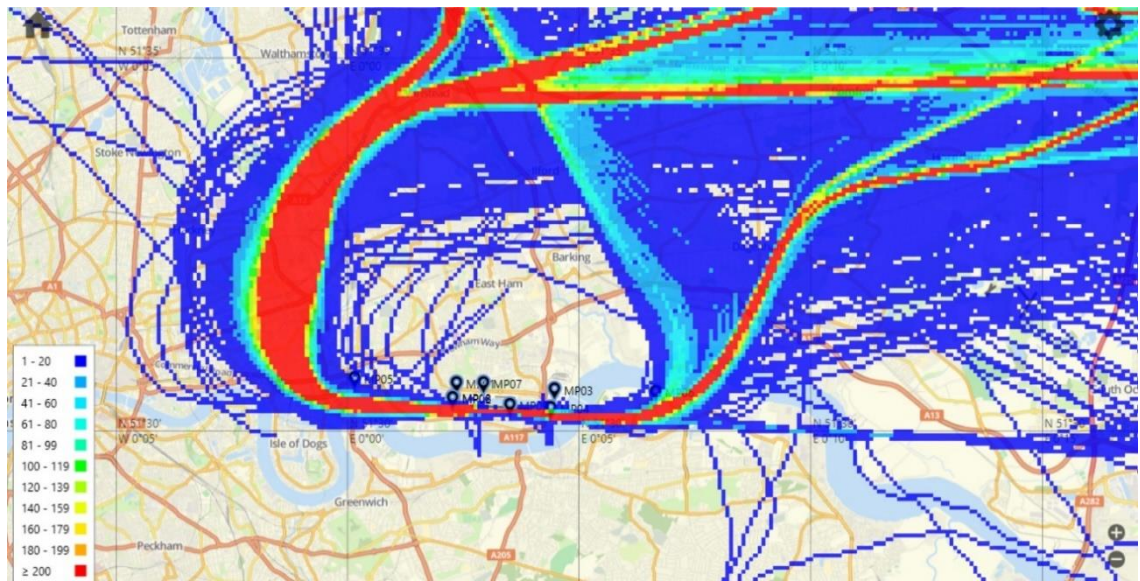
## APPENDIX 1

### FLIGHT TRACK MONITORING

This appendix presents the flight track monitoring data for 2019, broken down by quarter.

### **Quarter 1**

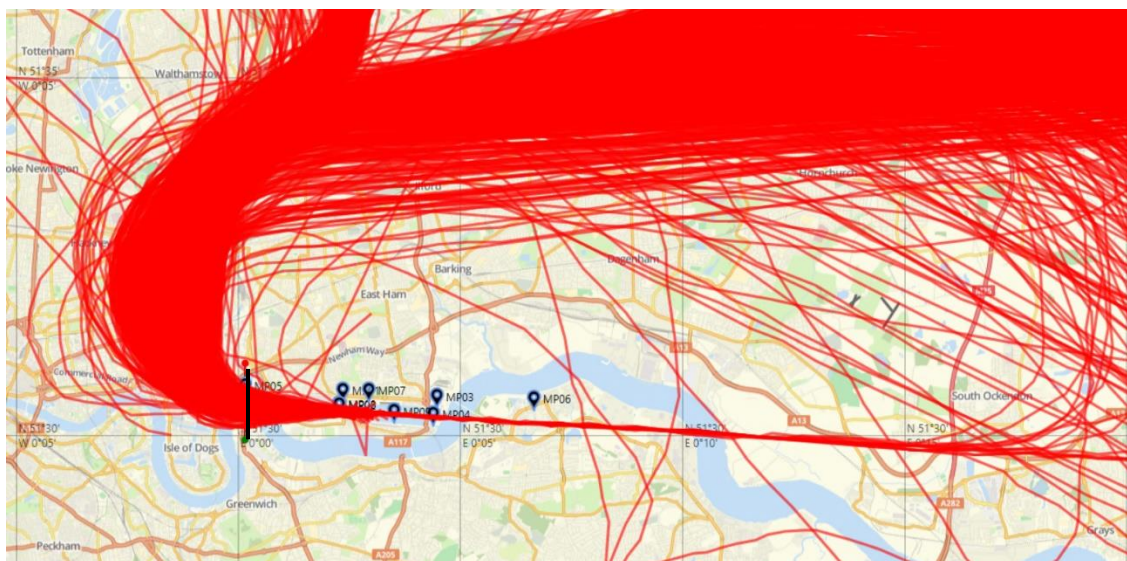
Figure A1.1 shows a heat map of all departures from LCA during the first quarter of 2019. The colour of each tile represents the number of aircraft that passed through it. The dark blue tiles represent the lowest frequency of departures and the red tiles represent the highest, as per the key in the bottom left of the image.



**Figure A1.1: Departure Heat Map, 2019 Q1**

### **Runway 27 Departures**

Departures using runway 27 initially go straight before turning right (northwards) to head in a northerly or easterly direction. All Standard Instrument Departures (SIDs) follow the same route initially. To illustrate the spread of aircraft departing from runway 27 during the first quarter of 2019, Figure A1.2 illustrates the track plot.



**Figure A1.2: Runway 27 Departure Track Plot, 2019 Q1**

A gate has been set up in the track keeping system at the location of NMT 5. The gate is 2 km wide and is shown in the above figure as a black line. The middle of the gate has been set up to coincide with the extended centreline of the runway.

Three departures failed to pass through the gate, which are detailed in Table A1.1 below. These aircraft passed slightly to the north of the gate. The flight on 30<sup>th</sup> January was a training flight.

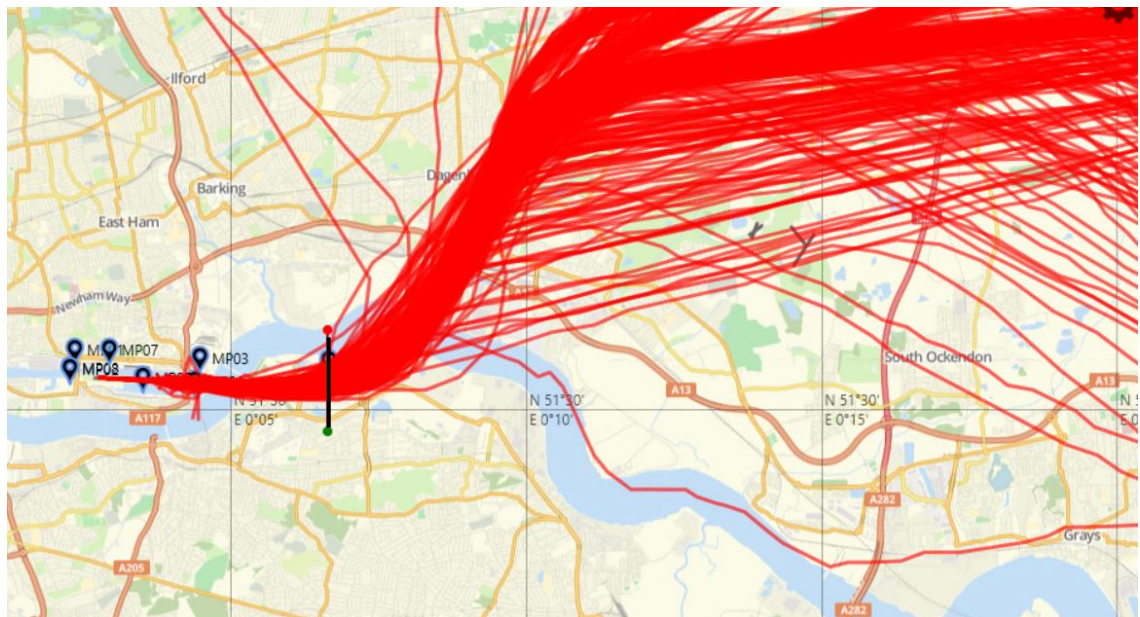
Date	Departure Time	Aircraft Type	Airline	SID
09/01/2019	16:10	E190	CFE	BPK
30/01/2019	13:37	E190	STK	LYD
04/03/2019	19:10	AT75	BCI	LYD

**Table A1.1: Runway 27 Off Track Departures, 2019 Q1**

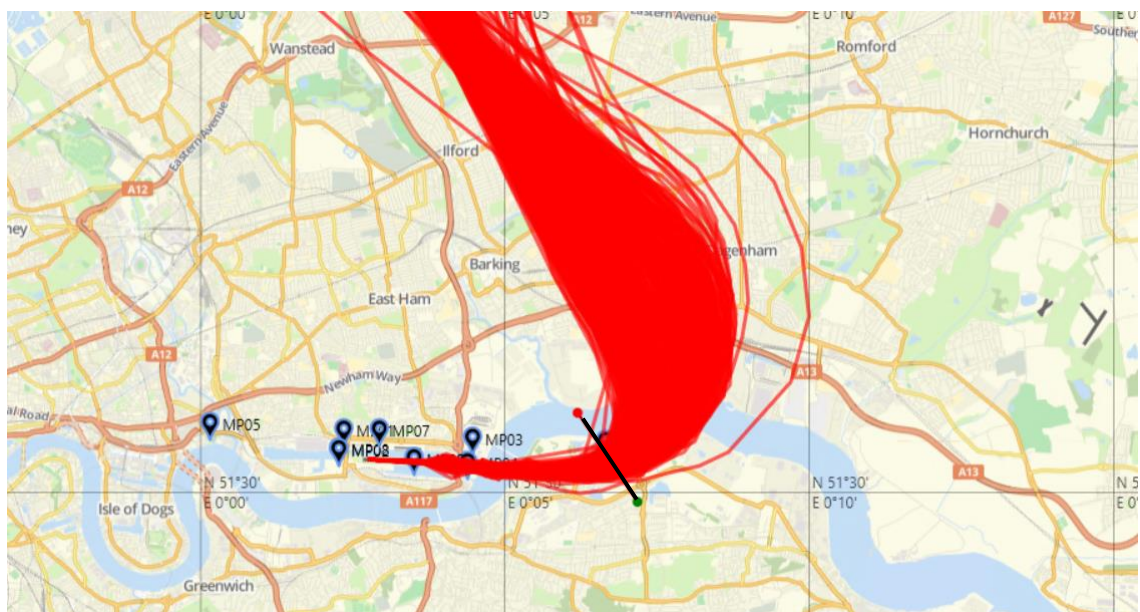
### Runway 09 Departures

Departures using Runway 09 initially go straight before following departure routes that diverge soon after departure depending on which SID is being followed. There are two distinct initial routes; the DVR, CLN and LYD SIDs turn towards the north-east whereas the BPK and CPT SIDs turn towards the north west soon after departure. For the purpose of this analysis, these have been split into two separate groups with track plots in Figure A1.3 and Figure A1.4.





**Figure A1.3: Runway 09 Departure Track Plot for 2019 Q1 – DVR, CLN and LYD SIDs**



**Figure A1.4: Runway 09 Departure Track Plot for 2019 Q1 – BPK and CPT SIDs**

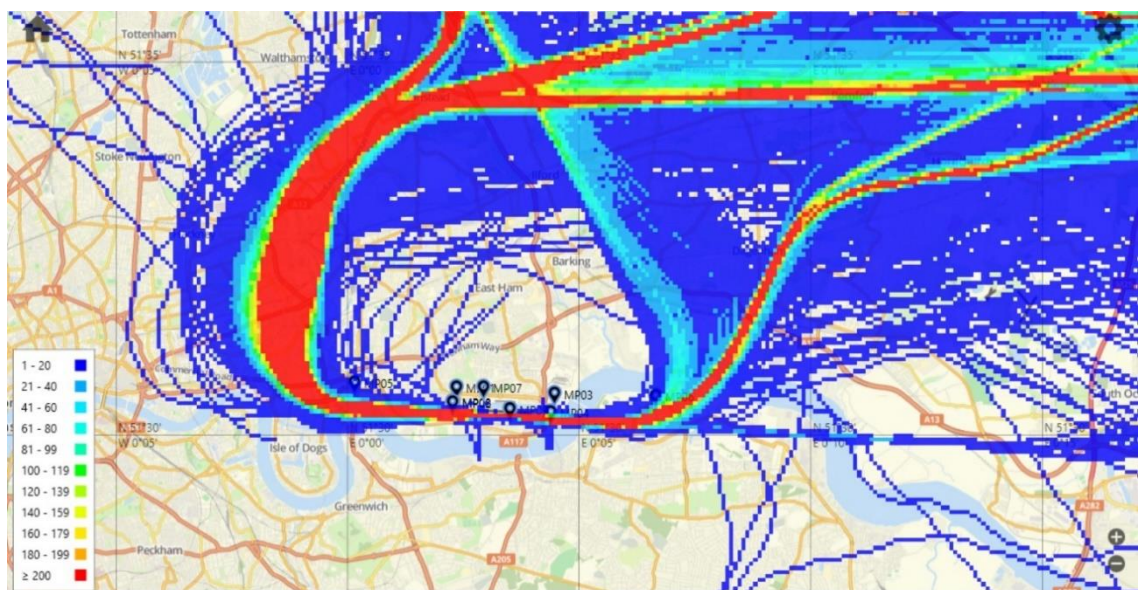
For the DVR, CLN and LYD routes, a gate was established at the location of NMT 6. The gate is 2 km wide and set up to coincide with the extended centreline of the runway, similar to the

corresponding gate at NMT 5. All aircraft passed through this gate during the first quarter of 2019. One flight turned south shortly after passing through the gate due to an ATC instruction.

For the BPK and CPT routes, aircraft commence a turn as they track over NMT 6, so a 2 km wide gate was established prior to the turn commencing. All aircraft passed through this gate during the first quarter of 2019.

## Quarter 2

Figure A1.5 shows a heat map of all departures from LCA during the second quarter of 2019. The colour of each tile represents the number of aircraft that passed through it. The dark blue tiles represent the lowest frequency of departures and the red tiles represent the highest, as per the key in the bottom left of the image.

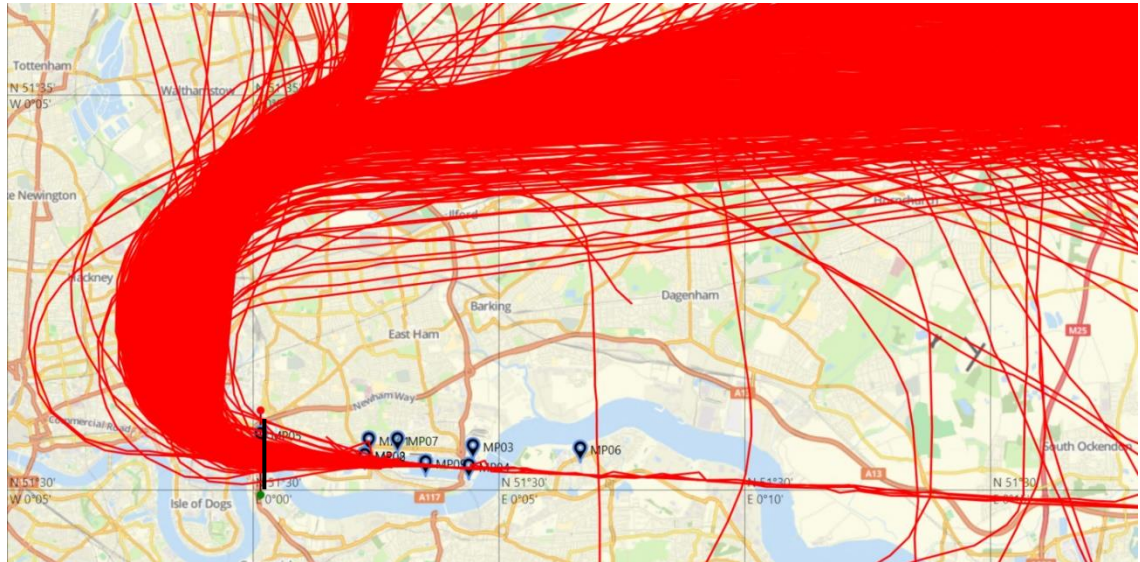


**Figure A1.5: Departure Heat Map, 2019 Q2**

## Runway 27 Departures

Departures using runway 27 initially go straight before turning right (northwards) to head in a northerly or easterly direction. All Standard Instrument Departures (SIDs) follow the same route initially. To illustrate the spread of aircraft departing from runway 27 during the second quarter of 2019, Figure A1.6 illustrates the track plot.





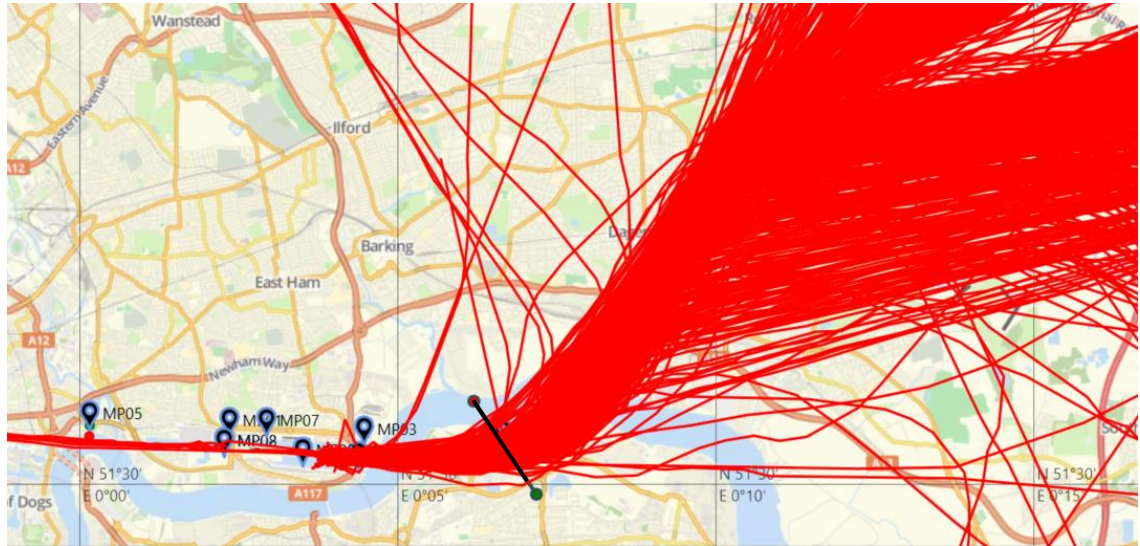
**Figure A1.6: Runway 27 Departure Track Plot, 2019 Q2**

A gate has been set up in the track keeping system at the location of NMT 5. The gate is 2 km wide and is shown in the above figure as a black line. The middle of the gate has been set up to coincide with the extended centreline of the runway.

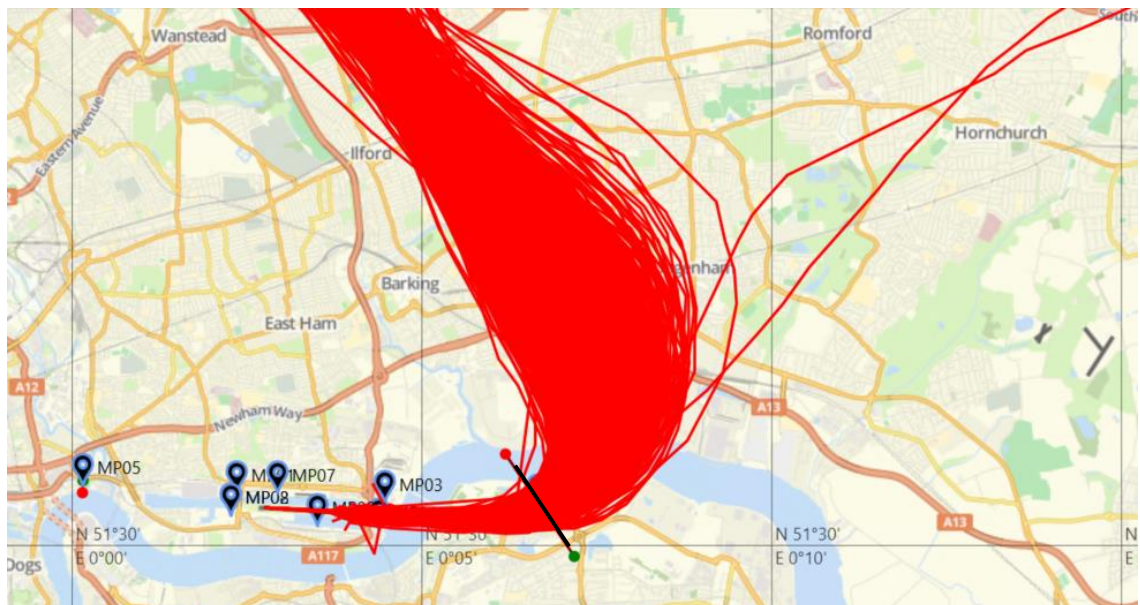
All runway 27 departures passed through this gate in Q2 2019.

### Runway 09 Departures

Departures using Runway 09 initially go straight before following departure routes that diverge soon after departure depending on which SID is being followed. There are two distinct initial routes; the DVR, CLN and LYD SIDs turn towards the north-east whereas the BPK and CPT SIDs turn towards the north west soon after departure. For the purpose of this analysis, these have been split into two separate groups with track plots in Figure A1.7 and Figure A1.8.



**Figure A1.7: Runway 09 Departure Track Plot for 2019 Q2 – DVR, CLN and LYD SIDs**



**Figure A1.8: Runway 09 Departure Track Plot for 2019 Q2 – BPK and CPT SIDs**

For the DVR, CLN and LYD routes, a gate was established at the location of NMT 6. The gate is 2 km wide and set up to coincide with the extended centreline of the runway, similar to the corresponding gate at NMT 5. All aircraft following these SIDs passed through this gate during the second quarter of 2019, with two exceptions which are detailed in Table A1.2. These two



flights turned north soon after departure and prior to passing through the gate. This is likely to be due to instruction from Air Traffic Control (ATC).

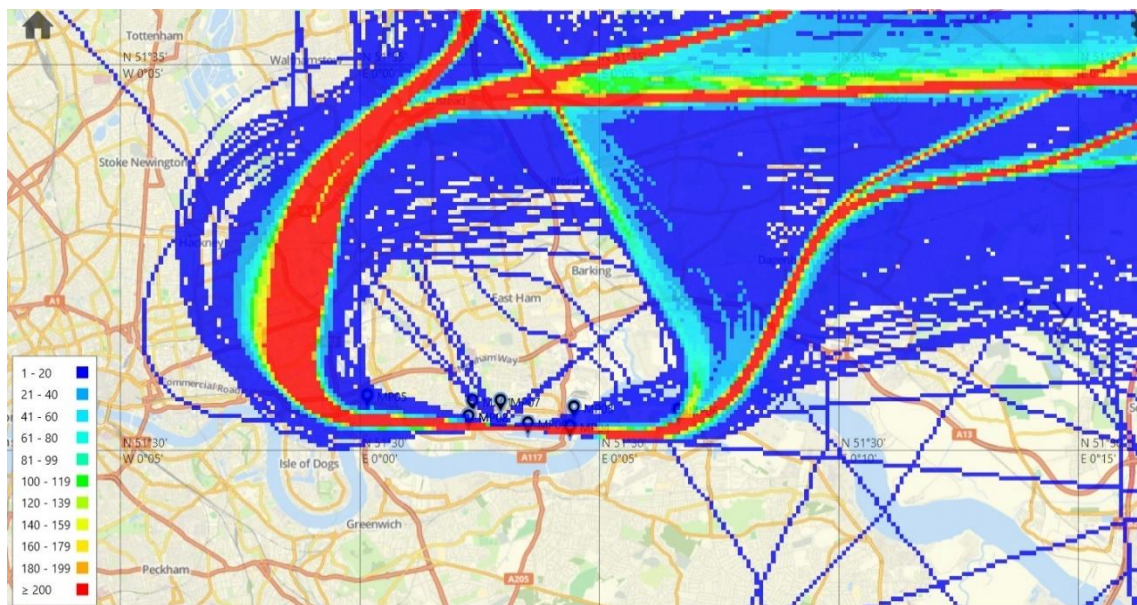
For the BPK and CPT routes, aircraft commence a turn as they track over NMT 6, so a 2 km wide gate was established prior to the turn commencing. All aircraft following these SIDs passed through this gate during the second quarter of 2019.

Date	Departure Time	Aircraft Type	Airline	SID
07/06/2019	20:12	BSC1 (A220)	SWR	DVR
07/06/2019	20:21	E170	CFE	CLN

**Table A1.2: Runway 09 Off Track Departures, 2019 Q2**

### Quarter 3

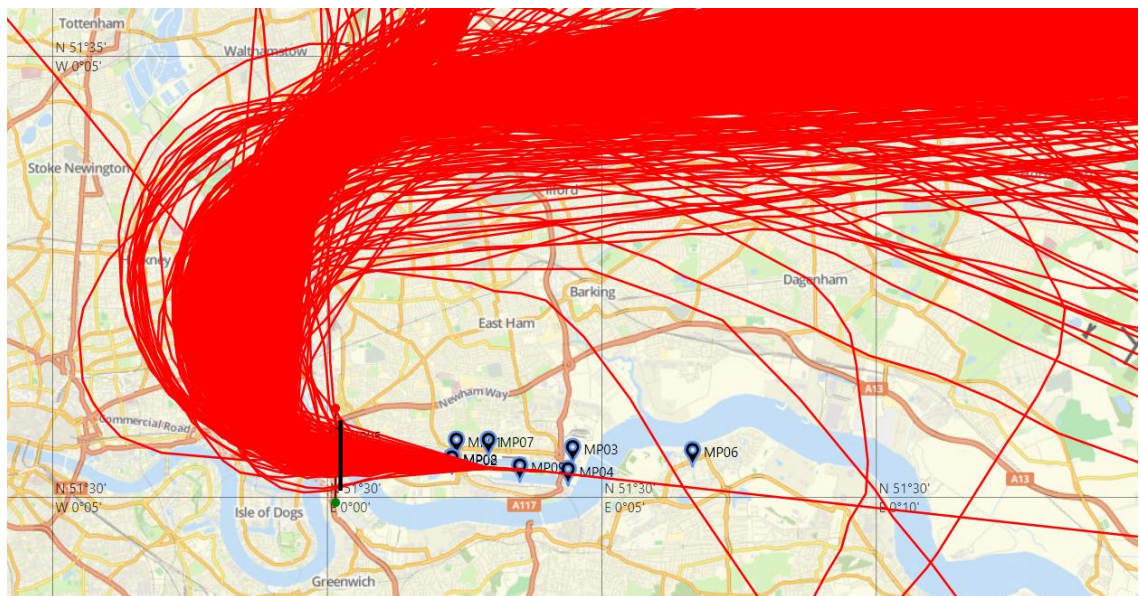
Figure A1.9 shows a heat map of all departures from LCA during the third quarter of 2019. The colour of each tile represents the number of aircraft that passed through it. The dark blue tiles represent the lowest frequency of departures and the red tiles represent the highest, as per the key in the bottom left of the image.



**Figure A1.9: Departure Heat Map, 2019 Q3**

### Runway 27 Departures

Departures using runway 27 initially go straight before turning right (northwards) to head in a northerly or easterly direction. All Standard Instrument Departures (SIDs) follow the same route initially. To illustrate the spread of aircraft departing from runway 27 during the third quarter of 2019, Figure A1.10 illustrates the track plot.



**Figure A1.10: Runway 27 Departure Track Plot, 2019 Q3**

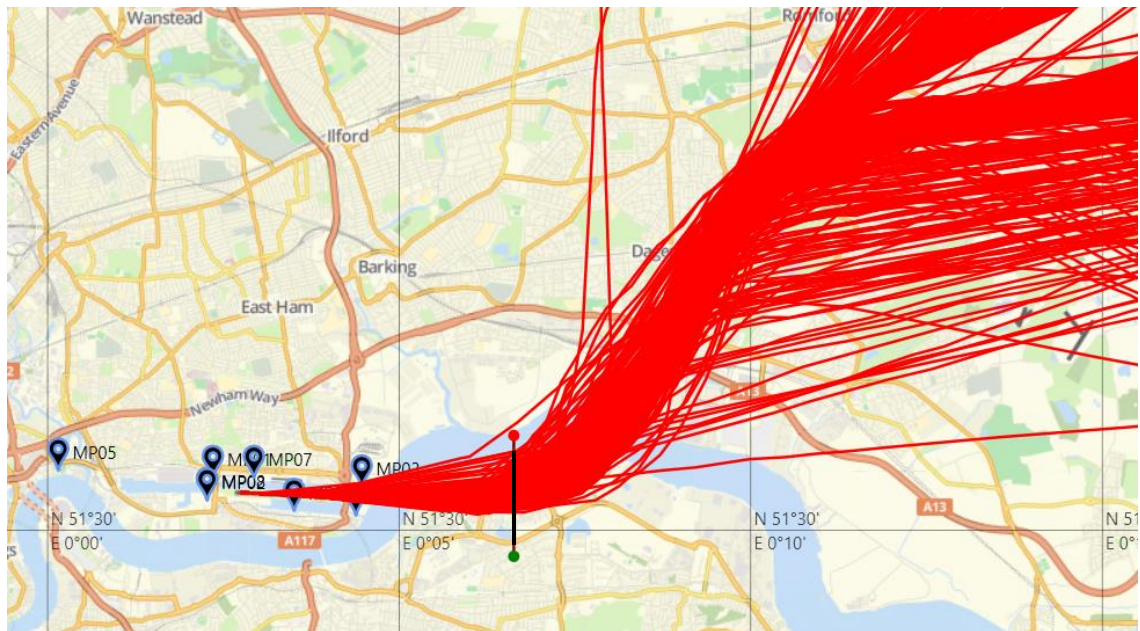
A gate has been set up in the track keeping system at the location of NMT 5. The gate is 2 km wide and is shown in the above figure as a black line. The middle of the gate has been set up to coincide with the extended centreline of the runway.

All runway 27 departures passed through this gate in Q3 2019.

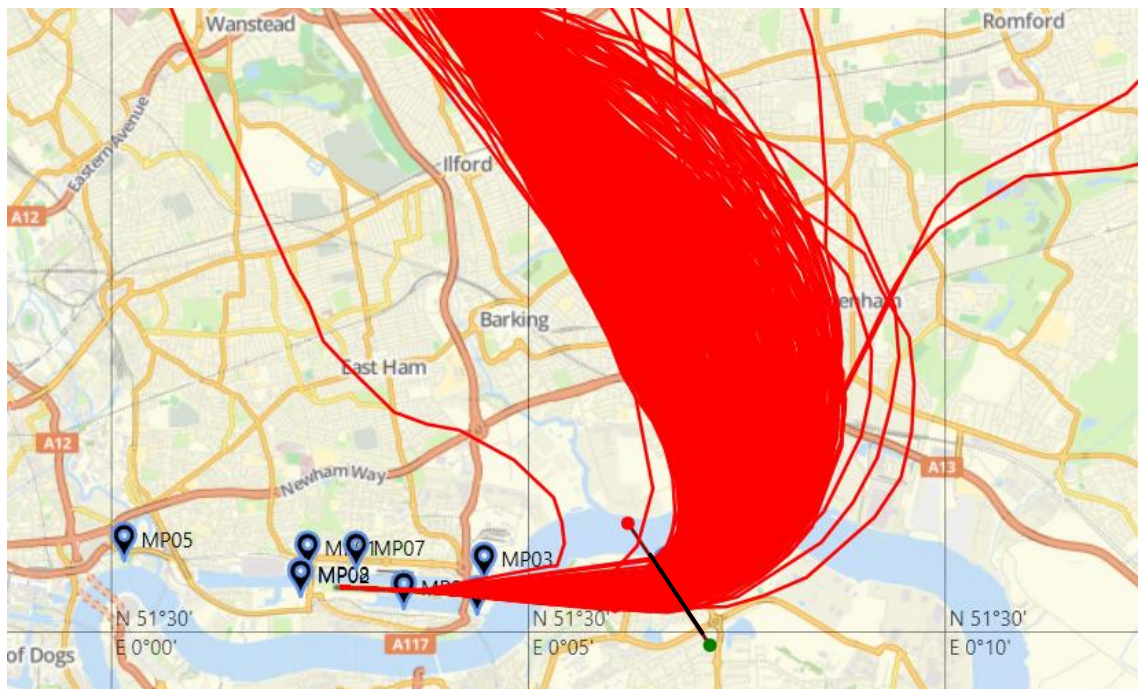
### Runway 09 Departures

Departures using Runway 09 initially go straight before following departure routes that diverge soon after departure depending on which SID is being followed. There are two distinct initial routes; the DVR, CLN and LYD SIDs turn towards the north-east whereas the BPK and CPT SIDs turn towards the north west soon after departure. For the purpose of this analysis, these have been split into two separate groups with track plots in Figure A1.11 and Figure A1.12.





**Figure A1.11: Runway 09 Departure Track Plot for 2019 Q3 – DVR, CLN and LYD SIDs**



**Figure A1.12: Runway 09 Departure Track Plot for 2019 Q3 – BPK and CPT SIDs**

For the DVR, CLN and LYD routes, a gate was established at the location of NMT 6. The gate is 2 km wide and set up to coincide with the extended centreline of the runway, similar to the corresponding gate at NMT 5. All aircraft following these SIDs passed through this gate during the third quarter of 2019, with one exception which is detailed in Table A1.3. This flight turned north soon after departure and prior to passing through the gate. This is likely to be due to instruction from Air Traffic Control (ATC).

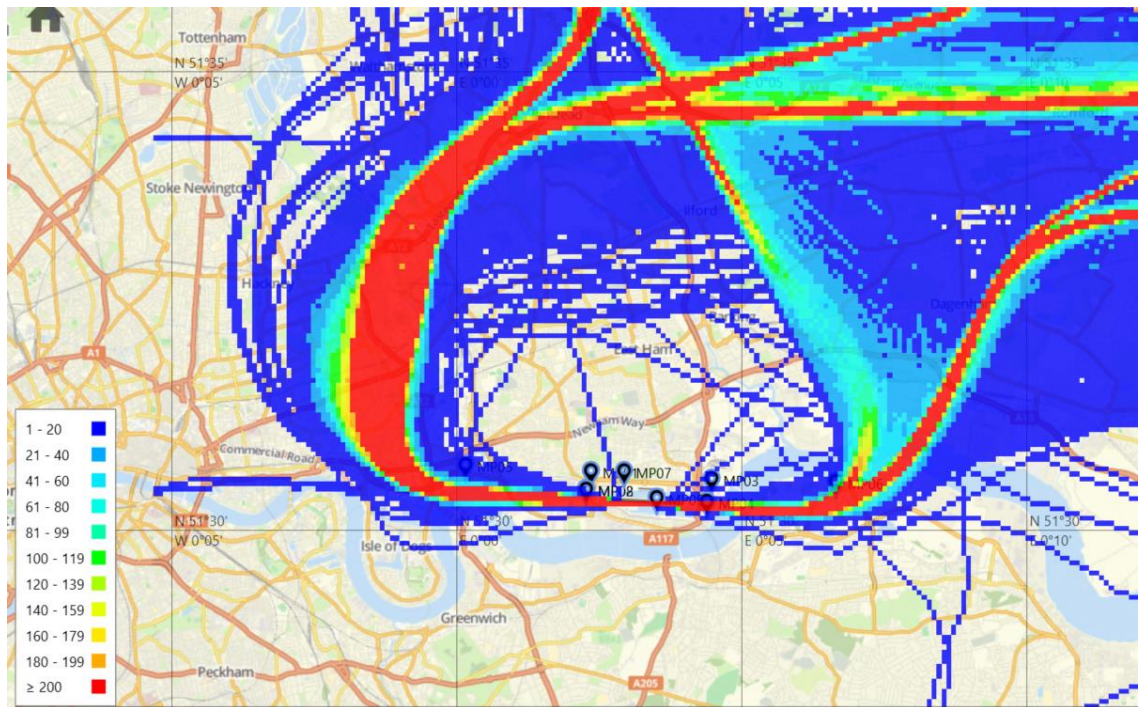
For the BPK and CPT routes, aircraft commence a turn as they track over NMT 6, so a 2 km wide gate was established prior to the turn commencing. All aircraft following these SIDs passed through this gate during the third quarter of 2019, with one exception which is detailed in Table A1.3. This flight turned north soon after departure and prior to passing through the gate. This is likely to be due to instruction from Air Traffic Control (ATC).

Date	Departure Time	Aircraft Type	Airline	SID
25/07/2019	18:34	E190	CFE	DVR
18/09/2019	10:22	RJ85	EIN	BPK

**Table A1.3: Runway 09 Off Track Departures, 2019 Q3**

#### **Quarter 4**

Figure A1.13 shows a heat map of all departures from LCA during the fourth quarter of 2019. The colour of each tile represents the number of aircraft that passed through it. The dark blue tiles represent the lowest frequency of departures and the red tiles represent the highest, as per the key in the bottom left of the image.

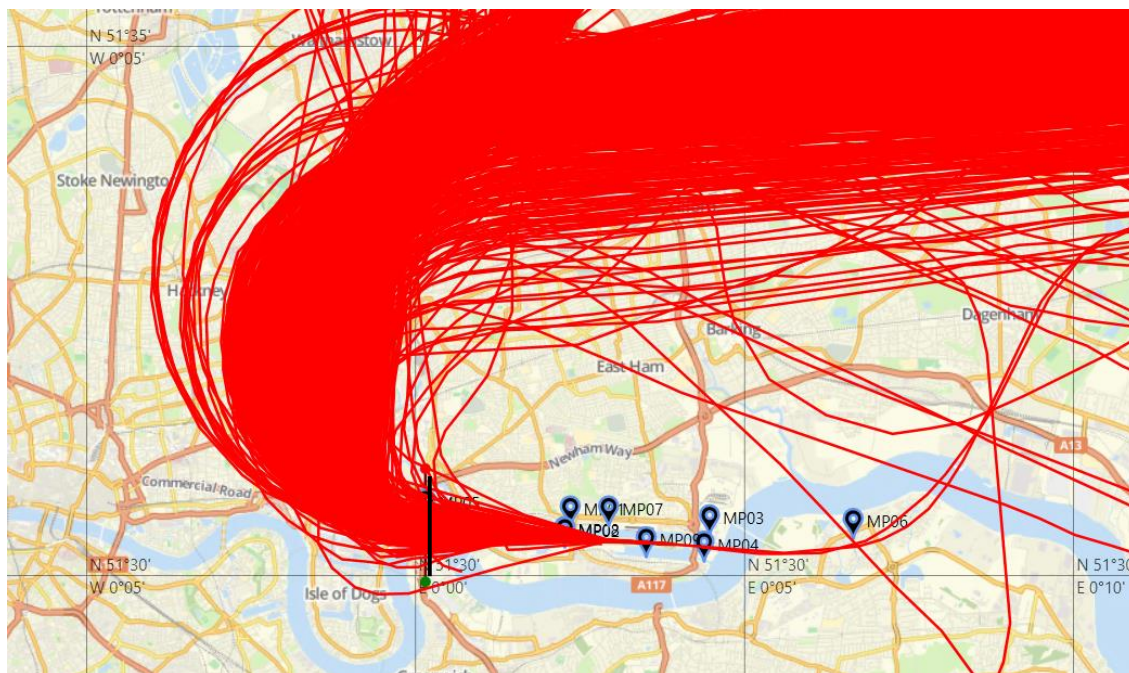


**Figure A1.13: Departure Heat Map, 2019 Q4**

### Runway 27 Departures

Departures using runway 27 initially go straight before turning right (northwards) to head in a northerly or easterly direction. All Standard Instrument Departures (SIDs) follow the same route initially. To illustrate the spread of aircraft departing from runway 27 during the fourth quarter of 2019, Figure A1.14 illustrates the track plot.





**Figure A1.14: Runway 27 Departure Track Plot, 2019 Q4**

A gate has been set up in the track keeping system at the location of NMT 5. The gate is 2 km wide and is shown in the above figure as a black line. The middle of the gate has been set up to coincide with the extended centreline of the runway.

All runway 27 departures passed through this gate in Q4 2019 with three exceptions which are detailed in Table A1.4.

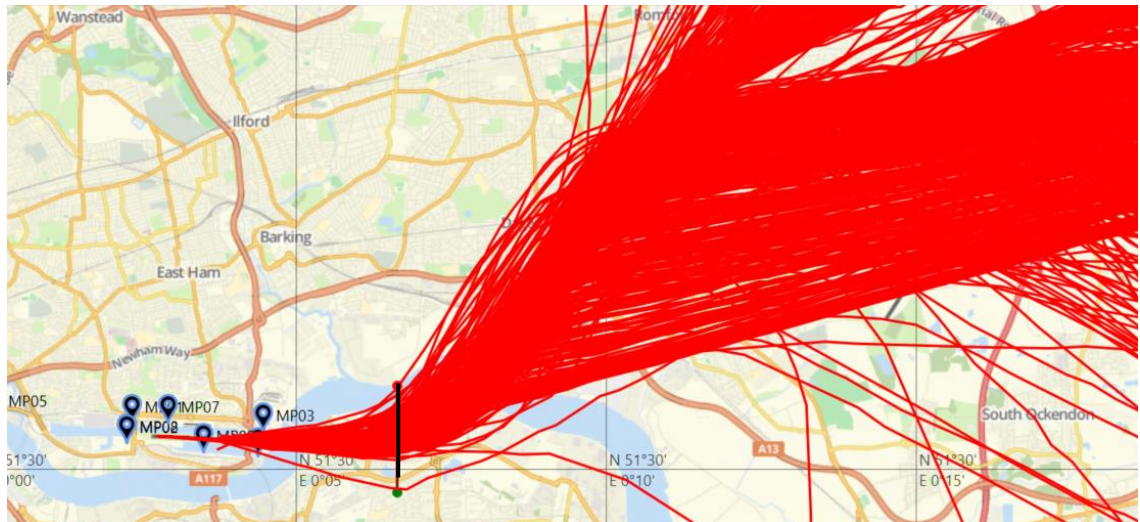
Date	Departure Time	Aircraft Type	Airline
06/12/2019	17:16	E170	CFE
09/12/2019	19:37	AT72	BCI
10/12/2019	15:56	P180	XGO

**Table A1.4: Runway 27 Off Track Departures, 2019 Q4**

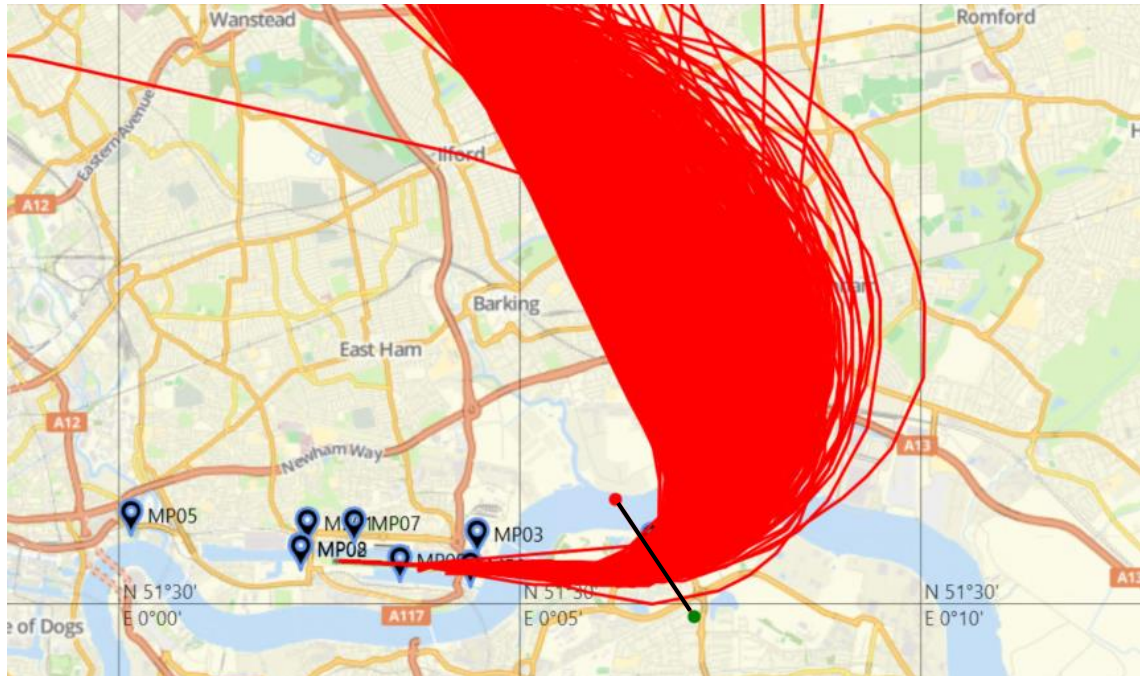
#### Runway 09 Departures

Departures using Runway 09 initially go straight before following departure routes that diverge soon after departure depending on which SID is being followed. There are two distinct initial routes; the DVR, CLN and LYD SIDs turn towards the north-east whereas the BPK and CPT SIDs

turn towards the north west soon after departure. For the purpose of this analysis, these have been split into two separate groups with track plots in Figure A1.15 and Figure A1.16.



**Figure A1.15: Runway 09 Departure Track Plot for 2019 Q4 – DVR, CLN and LYD SIDs**



**Figure A1.16: Runway 09 Departure Track Plot for 2019 Q4 – BPK and CPT SIDs**

For the DVR, CLN and LYD routes, a gate was established at the location of NMT 6. The gate is 2 km wide and set up to coincide with the extended centreline of the runway, similar to the corresponding gate at NMT 5. All aircraft following these SIDs passed through this gate during the fourth quarter of 2019.

For the BPK and CPT routes, aircraft commence a turn as they track over NMT 6, so a 2 km wide gate was established prior to the turn commencing. All aircraft following these SIDs passed through this gate during the fourth quarter of 2019.



## APPENDIX 2

### NTK STATUS REPORTS

Table A2.1 gives the daily operation status of each NMT for the 2019 calendar year.

Date	NMT Operational?					
	NMT1	NMT2	NMT3	NMT4	NMT5	NMT6
01/01/2019	Yes	Yes	Yes	Yes	Yes	Yes
02/01/2019	Yes	Yes	Yes	Yes	Yes	Yes
03/01/2019	Yes	Yes	Yes	Yes	Yes	Yes
04/01/2019	Yes	Yes	Yes	Yes	Yes	Yes
05/01/2019	Yes	Yes	Yes	Yes	Yes	Yes
06/01/2019	Yes	Yes	Yes	Yes	Yes	Yes
07/01/2019	Yes	Yes	Yes	Yes	Yes	Yes
08/01/2019	Yes	Yes	Yes	Yes	Yes	Yes
09/01/2019	Yes	Yes	Yes	Yes	Yes	Yes
10/01/2019	Yes	Yes	Yes	Yes	Yes	Yes
11/01/2019	Yes	Yes	Yes	Yes	Yes	Yes
12/01/2019	Yes	Yes	Yes	Yes	Yes	Yes
13/01/2019	Yes	Yes	Yes	Yes	Yes	Yes
14/01/2019	Yes	Yes	Yes	Yes	Yes	Yes
15/01/2019	Yes	Yes	Yes	Yes	Yes	Yes
16/01/2019	Yes	Yes	Yes	Yes	Yes	Yes
17/01/2019	Yes	Yes	Yes	Yes	Yes	Yes
18/01/2019	No	Yes	Yes	Yes	Yes	Yes
19/01/2019	No	Yes	Yes	Yes	Yes	Yes
20/01/2019	No	Yes	Yes	Yes	Yes	Yes
21/01/2019	Yes	Yes	Yes	Yes	Yes	Yes
22/01/2019	Yes	Yes	Yes	Yes	Yes	Yes
23/01/2019	Yes	Yes	Yes	Yes	Yes	Yes
24/01/2019	Yes	Yes	Yes	Yes	Yes	Yes
25/01/2019	Yes	Yes	Yes	Yes	Yes	Yes
26/01/2019	Yes	Yes	Yes	Yes	Yes	Yes
27/01/2019	Yes	Yes	Yes	Yes	Yes	Yes

Date	NMT Operational?					
	NMT1	NMT2	NMT3	NMT4	NMT5	NMT6
28/01/2019	Yes	Yes	Yes	Yes	Yes	Yes
29/01/2019	Yes	Yes	Yes	Yes	Yes	Yes
30/01/2019	Yes	Yes	Yes	Yes	Yes	Yes
31/01/2019	Yes	Yes	Yes	Yes	Yes	Yes
01/02/2019	Yes	Yes	Yes	Yes	Yes	Yes
02/02/2019	Yes	Yes	Yes	Yes	Yes	Yes
03/02/2019	Yes	Yes	Yes	Yes	Yes	Yes
04/02/2019	Yes	Yes	Yes	Yes	Yes	Yes
05/02/2019	Yes	Yes	Yes	Yes	Yes	Yes
06/02/2019	Yes	Yes	Yes	Yes	Yes	Yes
07/02/2019	Yes	Yes	Yes	Yes	Yes	Yes
08/02/2019	Yes	Yes	Yes	Yes	Yes	Yes
09/02/2019	Yes	Yes	Yes	Yes	Yes	No
10/02/2019	Yes	Yes	Yes	Yes	Yes	Yes
11/02/2019	Yes	Yes	Yes	Yes	Yes	Yes
12/02/2019	Yes	Yes	Yes	Yes	Yes	Yes
13/02/2019	Yes	Yes	Yes	Yes	Yes	Yes
14/02/2019	Yes	Yes	Yes	Yes	Yes	Yes
15/02/2019	Yes	Yes	Yes	Yes	Yes	Yes
16/02/2019	Yes	Yes	Yes	Yes	Yes	Yes
17/02/2019	Yes	Yes	Yes	Yes	Yes	Yes
18/02/2019	Yes	Yes	Yes	Yes	Yes	Yes
19/02/2019	Yes	Yes	Yes	Yes	Yes	Yes
20/02/2019	Yes	Yes	Yes	Yes	Yes	Yes
21/02/2019	Yes	Yes	Yes	Yes	Yes	Yes
22/02/2019	Yes	Yes	Yes	Yes	Yes	Yes
23/02/2019	Yes	Yes	Yes	Yes	Yes	Yes
24/02/2019	Yes	Yes	Yes	Yes	Yes	Yes

Date	NMT Operational?					
	NMT1	NMT2	NMT3	NMT4	NMT5	NMT6
25/02/2019	Yes	Yes	Yes	Yes	Yes	Yes
26/02/2019	Yes	Yes	Yes	Yes	Yes	Yes
27/02/2019	Yes	Yes	Yes	Yes	Yes	Yes
28/02/2019	Yes	Yes	Yes	Yes	Yes	Yes
01/03/2019	Yes	Yes	Yes	Yes	Yes	Yes
02/03/2019	Yes	Yes	Yes	Yes	Yes	Yes
03/03/2019	Yes	Yes	Yes	Yes	Yes	Yes
04/03/2019	Yes	Yes	Yes	Yes	Yes	Yes
05/03/2019	Yes	Yes	Yes	Yes	Yes	Yes
06/03/2019	Yes	Yes	Yes	Yes	Yes	Yes
07/03/2019	Yes	Yes	Yes	Yes	Yes	Yes
08/03/2019	Yes	Yes	Yes	Yes	Yes	Yes
09/03/2019	Yes	Yes	Yes	Yes	Yes	Yes
10/03/2019	Yes	Yes	Yes	Yes	Yes	Yes
11/03/2019	Yes	Yes	Yes	Yes	Yes	Yes
12/03/2019	Yes	Yes	Yes	Yes	Yes	Yes
13/03/2019	Yes	Yes	Yes	Yes	Yes	Yes
14/03/2019	Yes	Yes	Yes	Yes	Yes	Yes
15/03/2019	Yes	Yes	Yes	Yes	Yes	Yes
16/03/2019	Yes	Yes	Yes	Yes	Yes	Yes
17/03/2019	Yes	No	Yes	Yes	Yes	Yes
18/03/2019	Yes	No	Yes	Yes	Yes	Yes
19/03/2019	Yes	Yes	Yes	Yes	Yes	Yes
20/03/2019	Yes	Yes	Yes	Yes	Yes	Yes
21/03/2019	Yes	Yes	Yes	Yes	Yes	Yes
22/03/2019	Yes	Yes	Yes	Yes	Yes	Yes
23/03/2019	Yes	Yes	Yes	Yes	Yes	Yes
24/03/2019	Yes	Yes	Yes	Yes	Yes	Yes

Date	NMT Operational?					
	NMT1	NMT2	NMT3	NMT4	NMT5	NMT6
25/03/2019	Yes	Yes	Yes	Yes	Yes	Yes
26/03/2019	Yes	Yes	Yes	Yes	Yes	Yes
27/03/2019	Yes	Yes	Yes	Yes	Yes	Yes
28/03/2019	Yes	Yes	Yes	Yes	Yes	Yes
29/03/2019	Yes	Yes	Yes	Yes	Yes	Yes
30/03/2019	Yes	Yes	Yes	Yes	Yes	Yes
31/03/2019	Yes	Yes	Yes	Yes	Yes	Yes
01/04/2019	Yes	Yes	Yes	Yes	Yes	Yes
02/04/2019	Yes	Yes	Yes	Yes	Yes	Yes
03/04/2019	Yes	Yes	Yes	Yes	Yes	Yes
04/04/2019	Yes	Yes	Yes	Yes	Yes	Yes
05/04/2019	Yes	Yes	Yes	Yes	Yes	Yes
06/04/2019	Yes	Yes	Yes	Yes	Yes	Yes
07/04/2019	Yes	Yes	Yes	Yes	Yes	Yes
08/04/2019	Yes	Yes	Yes	Yes	Yes	Yes
09/04/2019	Yes	Yes	Yes	Yes	Yes	Yes
10/04/2019	Yes	Yes	Yes	Yes	Yes	Yes
11/04/2019	Yes	Yes	Yes	Yes	Yes	Yes
12/04/2019	Yes	Yes	Yes	Yes	Yes	Yes
13/04/2019	Yes	Yes	Yes	Yes	Yes	Yes
14/04/2019	Yes	Yes	Yes	Yes	Yes	Yes
15/04/2019	Yes	Yes	Yes	Yes	Yes	Yes
16/04/2019	Yes	Yes	Yes	Yes	Yes	Yes
17/04/2019	Yes	Yes	Yes	Yes	Yes	Yes
18/04/2019	Yes	Yes	Yes	Yes	Yes	Yes
19/04/2019	Yes	Yes	Yes	Yes	Yes	Yes
20/04/2019	Yes	Yes	Yes	Yes	Yes	Yes
21/04/2019	Yes	Yes	Yes	Yes	Yes	Yes

Date	NMT Operational?					
	NMT1	NMT2	NMT3	NMT4	NMT5	NMT6
22/04/2019	Yes	Yes	Yes	Yes	Yes	Yes
23/04/2019	Yes	Yes	Yes	Yes	Yes	Yes
24/04/2019	Yes	Yes	Yes	Yes	Yes	Yes
25/04/2019	Yes	Yes	Yes	Yes	Yes	Yes
26/04/2019	Yes	Yes	Yes	Yes	Yes	Yes
27/04/2019	Yes	Yes	Yes	Yes	Yes	Yes
28/04/2019	Yes	Yes	Yes	Yes	Yes	Yes
29/04/2019	Yes	Yes	Yes	Yes	Yes	Yes
30/04/2019	Yes	Yes	Yes	Yes	Yes	Yes
01/05/2019	Yes	Yes	Yes	Yes	Yes	Yes
02/05/2019	Yes	Yes	Yes	Yes	Yes	Yes
03/05/2019	Yes	Yes	Yes	Yes	Yes	Yes
04/05/2019	Yes	Yes	Yes	Yes	Yes	Yes
05/05/2019	Yes	Yes	Yes	Yes	Yes	Yes
06/05/2019	Yes	Yes	Yes	Yes	Yes	Yes
07/05/2019	Yes	Yes	Yes	Yes	Yes	Yes
08/05/2019	Yes	Yes	Yes	Yes	Yes	Yes
09/05/2019	Yes	Yes	Yes	Yes	Yes	Yes
10/05/2019	Yes	Yes	Yes	Yes	Yes	Yes
11/05/2019	Yes	Yes	Yes	Yes	Yes	Yes
12/05/2019	Yes	Yes	Yes	Yes	Yes	Yes
13/05/2019	Yes	Yes	Yes	Yes	Yes	Yes
14/05/2019	Yes	Yes	Yes	Yes	Yes	Yes
15/05/2019	Yes	Yes	Yes	Yes	Yes	Yes
16/05/2019	Yes	Yes	Yes	Yes	Yes	Yes
17/05/2019	Yes	Yes	Yes	Yes	Yes	Yes
18/05/2019	Yes	Yes	Yes	Yes	Yes	Yes
19/05/2019	Yes	Yes	Yes	Yes	Yes	Yes

Date	NMT Operational?					
	NMT1	NMT2	NMT3	NMT4	NMT5	NMT6
20/05/2019	Yes	Yes	Yes	Yes	Yes	Yes
21/05/2019	Yes	Yes	Yes	Yes	Yes	Yes
22/05/2019	Yes	Yes	Yes	Yes	Yes	Yes
23/05/2019	Yes	Yes	Yes	Yes	Yes	Yes
24/05/2019	Yes	Yes	Yes	Yes	Yes	Yes
25/05/2019	Yes	Yes	Yes	Yes	Yes	Yes
26/05/2019	Yes	Yes	Yes	Yes	Yes	Yes
27/05/2019	Yes	Yes	Yes	Yes	Yes	Yes
28/05/2019	Yes	Yes	Yes	Yes	Yes	Yes
29/05/2019	Yes	Yes	Yes	Yes	Yes	Yes
30/05/2019	Yes	Yes	Yes	Yes	Yes	Yes
31/05/2019	Yes	Yes	Yes	Yes	Yes	Yes
01/06/2019	Yes	Yes	Yes	Yes	Yes	Yes
02/06/2019	Yes	Yes	Yes	Yes	Yes	Yes
03/06/2019	Yes	Yes	Yes	Yes	Yes	Yes
04/06/2019	Yes	Yes	Yes	Yes	Yes	Yes
05/06/2019	Yes	Yes	Yes	Yes	Yes	Yes
06/06/2019	Yes	Yes	Yes	Yes	Yes	Yes
07/06/2019	Yes	Yes	Yes	Yes	Yes	Yes
08/06/2019	Yes	Yes	Yes	Yes	Yes	Yes
09/06/2019	Yes	Yes	Yes	Yes	Yes	Yes
10/06/2019	Yes	Yes	Yes	Yes	Yes	Yes
11/06/2019	Yes	Yes	Yes	Yes	Yes	Yes
12/06/2019	Yes	Yes	Yes	Yes	Yes	Yes
13/06/2019	Yes	Yes	Yes	Yes	Yes	Yes
14/06/2019	Yes	Yes	Yes	Yes	Yes	Yes
15/06/2019	Yes	Yes	Yes	Yes	Yes	Yes
16/06/2019	Yes	Yes	Yes	Yes	Yes	Yes

Date	NMT Operational?					
	NMT1	NMT2	NMT3	NMT4	NMT5	NMT6
17/06/2019	Yes	Yes	Yes	Yes	Yes	Yes
18/06/2019	Yes	Yes	Yes	Yes	Yes	Yes
19/06/2019	Yes	Yes	Yes	Yes	Yes	Yes
20/06/2019	Yes	Yes	Yes	Yes	Yes	Yes
21/06/2019	Yes	Yes	Yes	Yes	Yes	Yes
22/06/2019	Yes	Yes	Yes	Yes	Yes	Yes
23/06/2019	Yes	Yes	Yes	Yes	Yes	Yes
24/06/2019	Yes	Yes	Yes	Yes	Yes	Yes
25/06/2019	Yes	Yes	Yes	Yes	Yes	Yes
26/06/2019	Yes	Yes	Yes	Yes	Yes	Yes
27/06/2019	Yes	Yes	Yes	Yes	Yes	Yes
28/06/2019	Yes	Yes	Yes	Yes	Yes	Yes
29/06/2019	Yes	Yes	Yes	Yes	Yes	Yes
30/06/2019	Yes	Yes	Yes	Yes	Yes	Yes
01/07/2019	Yes	Yes	Yes	Yes	Yes	Yes
02/07/2019	Yes	Yes	Yes	Yes	Yes	Yes
03/07/2019	Yes	Yes	Yes	Yes	Yes	Yes
04/07/2019	Yes	Yes	Yes	Yes	Yes	Yes
05/07/2019	Yes	Yes	Yes	Yes	Yes	Yes
06/07/2019	Yes	Yes	Yes	Yes	Yes	Yes
07/07/2019	Yes	Yes	Yes	Yes	Yes	Yes
08/07/2019	Yes	Yes	Yes	Yes	Yes	Yes
09/07/2019	Yes	Yes	Yes	Yes	Yes	Yes
10/07/2019	Yes	Yes	Yes	Yes	Yes	Yes
11/07/2019	Yes	Yes	Yes	Yes	Yes	Yes
12/07/2019	Yes	Yes	Yes	Yes	Yes	Yes
13/07/2019	Yes	Yes	Yes	Yes	Yes	Yes
14/07/2019	Yes	Yes	Yes	Yes	Yes	Yes



Date	NMT Operational?					
	NMT1	NMT2	NMT3	NMT4	NMT5	NMT6
15/07/2019	Yes	Yes	Yes	Yes	Yes	Yes
16/07/2019	Yes	Yes	Yes	Yes	Yes	Yes
17/07/2019	Yes	Yes	Yes	Yes	Yes	Yes
18/07/2019	Yes	Yes	Yes	Yes	Yes	Yes
19/07/2019	Yes	Yes	Yes	Yes	Yes	Yes
20/07/2019	Yes	Yes	Yes	Yes	Yes	Yes
21/07/2019	Yes	Yes	Yes	Yes	Yes	Yes
22/07/2019	Yes	Yes	Yes	Yes	Yes	Yes
23/07/2019	Yes	Yes	Yes	Yes	Yes	Yes
24/07/2019	Yes	Yes	Yes	Yes	Yes	Yes
25/07/2019	Yes	Yes	Yes	Yes	Yes	Yes
26/07/2019	Yes	Yes	Yes	Yes	Yes	Yes
27/07/2019	Yes	Yes	Yes	Yes	Yes	Yes
28/07/2019	Yes	Yes	Yes	Yes	Yes	Yes
29/07/2019	Yes	Yes	Yes	Yes	Yes	Yes
30/07/2019	Yes	Yes	Yes	Yes	Yes	Yes
31/07/2019	Yes	Yes	Yes	Yes	Yes	Yes
01/08/2019	Yes	Yes	Yes	Yes	Yes	Yes
02/08/2019	Yes	Yes	Yes	Yes	Yes	Yes
03/08/2019	Yes	Yes	Yes	Yes	Yes	Yes
04/08/2019	Yes	Yes	Yes	Yes	Yes	Yes
05/08/2019	Yes	Yes	Yes	Yes	Yes	Yes
06/08/2019	Yes	Yes	Yes	Yes	Yes	Yes
07/08/2019	Yes	Yes	Yes	Yes	Yes	Yes
08/08/2019	Yes	Yes	Yes	Yes	Yes	Yes
09/08/2019	Yes	Yes	Yes	Yes	Yes	Yes
10/08/2019	Yes	Yes	Yes	Yes	Yes	Yes
11/08/2019	Yes	Yes	Yes	Yes	Yes	Yes

Date	NMT Operational?					
	NMT1	NMT2	NMT3	NMT4	NMT5	NMT6
12/08/2019	Yes	Yes	Yes	Yes	Yes	Yes
13/08/2019	Yes	Yes	Yes	Yes	Yes	Yes
14/08/2019	Yes	Yes	Yes	Yes	Yes	Yes
15/08/2019	Yes	Yes	Yes	Yes	Yes	Yes
16/08/2019	Yes	Yes	Yes	Yes	Yes	Yes
17/08/2019	Yes	Yes	Yes	Yes	Yes	Yes
18/08/2019	Yes	Yes	Yes	Yes	Yes	Yes
19/08/2019	Yes	Yes	Yes	Yes	Yes	Yes
20/08/2019	Yes	Yes	Yes	Yes	Yes	Yes
21/08/2019	Yes	Yes	Yes	Yes	Yes	Yes
22/08/2019	Yes	Yes	Yes	Yes	Yes	Yes
23/08/2019	Yes	Yes	Yes	Yes	Yes	Yes
24/08/2019	Yes	Yes	Yes	Yes	Yes	Yes
25/08/2019	Yes	Yes	Yes	Yes	Yes	Yes
26/08/2019	Yes	Yes	Yes	Yes	Yes	Yes
27/08/2019	Yes	Yes	Yes	Yes	Yes	Yes
28/08/2019	Yes	Yes	Yes	Yes	Yes	Yes
29/08/2019	Yes	Yes	Yes	Yes	Yes	Yes
30/08/2019	Yes	Yes	Yes	Yes	Yes	Yes
31/08/2019	Yes	Yes	Yes	Yes	Yes	Yes
01/09/2019	Yes	Yes	Yes	Yes	Yes	Yes
02/09/2019	Yes	Yes	Yes	Yes	Yes	Yes
03/09/2019	Yes	Yes	Yes	Yes	Yes	Yes
04/09/2019	Yes	Yes	Yes	Yes	Yes	Yes
05/09/2019	Yes	Yes	Yes	Yes	Yes	Yes
06/09/2019	Yes	Yes	Yes	Yes	Yes	Yes
07/09/2019	Yes	Yes	Yes	Yes	Yes	Yes
08/09/2019	Yes	Yes	Yes	Yes	Yes	Yes

Date	NMT Operational?					
	NMT1	NMT2	NMT3	NMT4	NMT5	NMT6
09/09/2019	Yes	Yes	Yes	Yes	Yes	Yes
10/09/2019	Yes	Yes	Yes	Yes	Yes	Yes
11/09/2019	Yes	Yes	Yes	Yes	Yes	Yes
12/09/2019	Yes	Yes	Yes	Yes	Yes	Yes
13/09/2019	Yes	Yes	Yes	Yes	Yes	Yes
14/09/2019	Yes	Yes	Yes	Yes	Yes	Yes
15/09/2019	Yes	Yes	Yes	Yes	Yes	Yes
16/09/2019	Yes	Yes	Yes	Yes	Yes	Yes
17/09/2019	Yes	Yes	Yes	Yes	Yes	Yes
18/09/2019	Yes	Yes	Yes	Yes	Yes	Yes
19/09/2019	Yes	Yes	Yes	Yes	Yes	Yes
20/09/2019	Yes	Yes	Yes	Yes	Yes	Yes
21/09/2019	Yes	Yes	Yes	Yes	Yes	Yes
22/09/2019	Yes	Yes	Yes	Yes	Yes	Yes
23/09/2019	Yes	Yes	Yes	Yes	Yes	Yes
24/09/2019	Yes	Yes	Yes	Yes	Yes	Yes
25/09/2019	Yes	Yes	Yes	Yes	Yes	Yes
26/09/2019	Yes	Yes	Yes	Yes	Yes	Yes
27/09/2019	Yes	Yes	Yes	Yes	Yes	Yes
28/09/2019	Yes	Yes	Yes	Yes	Yes	Yes
29/09/2019	Yes	Yes	Yes	Yes	Yes	Yes
30/09/2019	Yes	Yes	Yes	Yes	Yes	Yes
01/10/2019	Yes	Yes	Yes	Yes	Yes	Yes
02/10/2019	Yes	Yes	Yes	Yes	Yes	Yes
03/10/2019	Yes	Yes	Yes	Yes	Yes	Yes
04/10/2019	Yes	Yes	Yes	Yes	Yes	Yes
05/10/2019	Yes	Yes	Yes	Yes	Yes	Yes
06/10/2019	Yes	Yes	Yes	Yes	Yes	Yes

Date	NMT Operational?					
	NMT1	NMT2	NMT3	NMT4	NMT5	NMT6
07/10/2019	Yes	Yes	Yes	Yes	Yes	Yes
08/10/2019	Yes	Yes	Yes	Yes	Yes	Yes
09/10/2019	Yes	Yes	Yes	Yes	Yes	Yes
10/10/2019	Yes	Yes	Yes	Yes	Yes	Yes
11/10/2019	Yes	Yes	Yes	Yes	Yes	Yes
12/10/2019	Yes	Yes	Yes	Yes	Yes	Yes
13/10/2019	Yes	Yes	Yes	Yes	Yes	Yes
14/10/2019	Yes	Yes	Yes	Yes	Yes	Yes
15/10/2019	Yes	Yes	Yes	Yes	Yes	Yes
16/10/2019	Yes	Yes	Yes	Yes	Yes	Yes
17/10/2019	Yes	Yes	Yes	Yes	Yes	Yes
18/10/2019	Yes	Yes	Yes	Yes	Yes	Yes
19/10/2019	Yes	Yes	Yes	Yes	Yes	Yes
20/10/2019	Yes	Yes	Yes	Yes	Yes	Yes
21/10/2019	Yes	Yes	Yes	Yes	Yes	Yes
22/10/2019	Yes	Yes	Yes	Yes	Yes	Yes
23/10/2019	Yes	Yes	Yes	Yes	Yes	Yes
24/10/2019	Yes	Yes	Yes	Yes	Yes	Yes
25/10/2019	Yes	Yes	Yes	Yes	Yes	Yes
26/10/2019	Yes	Yes	Yes	Yes	Yes	Yes
27/10/2019	Yes	Yes	Yes	Yes	Yes	Yes
28/10/2019	Yes	Yes	Yes	Yes	Yes	Yes
29/10/2019	Yes	Yes	Yes	Yes	Yes	Yes
30/10/2019	Yes	Yes	Yes	Yes	Yes	Yes
31/10/2019	Yes	Yes	Yes	Yes	Yes	Yes
01/11/2019	Yes	Yes	Yes	Yes	Yes	Yes
02/11/2019	Yes	Yes	Yes	Yes	Yes	Yes
03/11/2019	Yes	Yes	Yes	Yes	Yes	Yes

Date	NMT Operational?					
	NMT1	NMT2	NMT3	NMT4	NMT5	NMT6
04/11/2019	Yes	Yes	Yes	Yes	Yes	Yes
05/11/2019	Yes	Yes	Yes	Yes	Yes	Yes
06/11/2019	Yes	Yes	Yes	Yes	Yes	Yes
07/11/2019	Yes	Yes	Yes	Yes	Yes	Yes
08/11/2019	Yes	Yes	Yes	Yes	Yes	Yes
09/11/2019	Yes	Yes	Yes	Yes	Yes	Yes
10/11/2019	Yes	Yes	Yes	Yes	Yes	Yes
11/11/2019	Yes	Yes	Yes	Yes	Yes	Yes
12/11/2019	Yes	Yes	Yes	Yes	Yes	Yes
13/11/2019	Yes	Yes	Yes	Yes	Yes	Yes
14/11/2019	Yes	Yes	Yes	Yes	Yes	Yes
15/11/2019	Yes	Yes	Yes	Yes	Yes	Yes
16/11/2019	Yes	Yes	Yes	Yes	Yes	Yes
17/11/2019	Yes	Yes	Yes	Yes	Yes	Yes
18/11/2019	Yes	Yes	Yes	Yes	Yes	Yes
19/11/2019	Yes	Yes	Yes	Yes	Yes	Yes
20/11/2019	Yes	Yes	Yes	Yes	Yes	Yes
21/11/2019	Yes	Yes	Yes	Yes	Yes	Yes
22/11/2019	Yes	Yes	Yes	Yes	Yes	Yes
23/11/2019	Yes	Yes	Yes	Yes	Yes	Yes
24/11/2019	Yes	Yes	Yes	Yes	Yes	Yes
25/11/2019	Yes	Yes	Yes	Yes	Yes	Yes
26/11/2019	Yes	Yes	Yes	Yes	Yes	Yes
27/11/2019	Yes	Yes	Yes	Yes	Yes	Yes
28/11/2019	Yes	Yes	Yes	Yes	Yes	Yes
29/11/2019	Yes	Yes	Yes	Yes	Yes	Yes
30/11/2019	Yes	Yes	Yes	Yes	Yes	Yes
01/12/2019	Yes	Yes	Yes	Yes	Yes	Yes

Date	NMT Operational?					
	NMT1	NMT2	NMT3	NMT4	NMT5	NMT6
02/12/2019	Yes	Yes	Yes	Yes	Yes	Yes
03/12/2019	Yes	Yes	Yes	Yes	Yes	Yes
04/12/2019	Yes	Yes	Yes	Yes	Yes	Yes
05/12/2019	Yes	Yes	Yes	Yes	Yes	Yes
06/12/2019	Yes	Yes	Yes	Yes	Yes	Yes
07/12/2019	Yes	Yes	Yes	Yes	Yes	Yes
08/12/2019	Yes	Yes	Yes	Yes	Yes	Yes
09/12/2019	Yes	Yes	Yes	Yes	Yes	Yes
10/12/2019	Yes	Yes	Yes	Yes	Yes	Yes
11/12/2019	Yes	Yes	Yes	Yes	Yes	Yes
12/12/2019	Yes	Yes	Yes	Yes	Yes	Yes
13/12/2019	Yes	Yes	Yes	Yes	Yes	Yes
14/12/2019	Yes	Yes	Yes	Yes	Yes	Yes
15/12/2019	Yes	Yes	Yes	Yes	Yes	Yes
16/12/2019	Yes	Yes	Yes	Yes	Yes	Yes
17/12/2019	Yes	Yes	Yes	Yes	Yes	Yes
18/12/2019	Yes	Yes	Yes	Yes	Yes	Yes
19/12/2019	Yes	Yes	Yes	Yes	Yes	Yes
20/12/2019	Yes	Yes	Yes	Yes	No	Yes
21/12/2019	Yes	Yes	Yes	Yes	No	Yes
22/12/2019	Yes	Yes	Yes	Yes	No	Yes
23/12/2019	Yes	Yes	Yes	Yes	Yes	Yes
24/12/2019	Yes	Yes	Yes	Yes	Yes	Yes
25/12/2019	Yes	Yes	Yes	Yes	Yes	Yes
26/12/2019	Yes	Yes	Yes	Yes	Yes	Yes
27/12/2019	Yes	Yes	Yes	Yes	Yes	Yes
28/12/2019	Yes	Yes	Yes	Yes	Yes	Yes
29/12/2019	Yes	Yes	Yes	Yes	Yes	Yes

Date	NMT Operational?					
	NMT1	NMT2	NMT3	NMT4	NMT5	NMT6
30/12/2019	Yes	Yes	Yes	Yes	Yes	Yes
31/12/2019	Yes	Yes	Yes	Yes	Yes	Yes

**Table A2.1: 2019 NTK daily operational status**

A summary of the correlation rate for each month of 2019 is given in Table A2.2. In order to calculate the rate of correlation, the number of aircraft movements correlated has been compared against the number of operations at London City Airport during the same period. It has been assumed that the number of arrivals and departures each constitute 50% of the total number of operations.

Month	No. Operations	No. Correlated Departures (Sideline)	No. Correlated Departures (Flyover)	No. Correlated Arrivals
January	6,550	3,028	3,073	3,076
February	6,501	2,893	3,011	2,992
March	7,317	2,683	2,934	2,949
April	7,078	3,467	3,446	3,445
May	7,653	3,725	3,744	3,750
June	7,245	3,454	3,449	3,473
July	7,222	3,566	3,544	3,540
August	6,517	3,141	3,153	3,176
September	7,337	3,395	3,369	3,356
October	7,680	3,633	3,618	3,625
November	6,722	3,167	3,258	3,251
December	6,141	2,906	2,600	2,774

**Table A2.2: Summary of Correlated Aircraft Movements, 2019**

Table A2.3 gives a summary of the NTK operational status for each quarter.

Quarter	Operational Summary
January – March	All 6 NMTs were operational, and data was received from each NMT for all days, with six exceptions. These were due to issues with the power supply at NMTs 1&2 which required a manual restart, and a problem communicating with NMT6 which meant data could not be downloaded from the monitor for 9 February. The target correlation rate (80%) at NMTs 1-4 for departures was met for the first quarter of 2019. A total of 8,604 aircraft departures were recorded, and an average correlation rate of noise events to aircraft departures of 84% was achieved. In the first quarter of 2019, a total of 9,018 (89%) departures and 9,017 (89%) arrivals were correlated at NMTs 5 and 6. The correlation rates in February and March were affected by a significant amount of recorded noise events being marked as invalid due to high winds.
April – June	All 6 NMTs were operational, and data was received from each NMT for all days. The target correlation rate (80%) at NMTs 1-4 for departures was met for the second quarter of 2019. A total of 10,646 aircraft departures were recorded, and an average correlation rate of noise events to aircraft departures of 97% was achieved. In the second quarter of 2019, a total of 10,639 (97%) departures and 10,668 (97%) arrivals were correlated at NMTs 5 and 6.
July – September	All 6 NMTs were operational, and data was received from each NMT for all days. The target correlation rate (80%) at NMTs 1-4 for departures was met for the third quarter of 2019. A total of 10,102 aircraft departures were recorded, and an average correlation rate of noise events to aircraft departures of 96% was achieved. In the third quarter of 2019, a total of 10,066 (95%) departures and 10,072 (96%) arrivals were correlated at NMTs 5 and 6.
October - December	All 6 NMTs were operational, and data was received from each NMT for all days, with the exception of NMT5 which was offline from 20-22 December 2019. This was due to the connection to the NMT being lost following a regular calibration visit. The connection was re-established on 23 December. The target correlation rate (80%) at NMTs 1-4 for departures was met for the fourth quarter of 2019. A total of 9,706 aircraft departures were recorded, and an average correlation rate of noise events to aircraft departures of 94% was achieved. In the fourth quarter of 2019, a total of 9,476 (92%) departures and 9,650 (94%) arrivals were correlated at NMTs 5 and 6.

**Table A2.3: 2019 Quarterly Operations Summary**



## APPENDIX 3

### LONDON CITY AIRPORT COMMUNITY FUND GRANTS 2019



### London City Airport Community Fund

30 organisations from 10 East London local boroughs were awarded a grant between £300 to £3000 in 2019.

### **First tranche of grants - September 2019**

<b>Amount awarded</b>	<b>Name of the organisation</b>	<b>Borough supporting</b>	<b>Category</b>	<b>Funding Criteria</b>
£ 2,660	Canaan Project	Tower Hamlets	Raising aspirations	building stronger, safer, healthier communities
£ 2,720	Dalmain Athletic Girls Football Club	Lewisham	Employability	creating pathways into employment
£ 2,000	Free Your Mind cic	Barking & Dagenham, Epping Forest	Mental Health & wellbeing	building stronger, safer, healthier communities
£ 3,000	Hackney Association Youth Club	Hackney	Employability	creating pathways into employment
£ 2,700	Havering Association for People with Disabilities	Havering	People with Reduced Mobility (PRM)	building stronger, safer, healthier communities
£ 2,475	Healthy Living Projects Limited	Redbridge	Poverty	building stronger, safer, healthier communities

£ 3,000	Inspire! Education Business Partnership	Waltham Forest	Employability	creating pathways into employment
£ 3,000	Kings Cross <del>Steelers</del> RFC	Newham	LGBT	building stronger, safer, healthier communities
£ 1,615	Lambeth Libraries	Lambeth	Poverty & employability	creating pathways into employment
£ 1,500	Mind in Tower Hamlet & Newham	Greenwich, Newham, Tower Hamlets	Mental Health & wellbeing	building stronger, safer, healthier communities
£ 2,475	Samaritans - Redbridge Branch	Barking & Dagenham, Epping Forest, Newham, Redbridge	Mental Health & wellbeing	building stronger, safer, healthier communities
£ 3,000	Samuel Montagu Youth Centre	Greenwich	Sports	building stronger, safer, healthier communities
£ 2,000	Thames View Tenants & Residents Association	Barking & Dagenham	Environment	creating more sustainable and greener communities
£ 3,000	Thames Ward Community Project	Barking & Dagenham	Environment	creating more sustainable and greener communities
£ 3,000	The Magpie Project	Newham	Poverty	building stronger, safer, healthier communities
£ 3,000	The Poplar Partnership	Tower Hamlets	Education	raising aspirations of East Londoners
<b>£ 41,145</b>	<b>16 organisations</b>			

## Second tranche of grants - December 2019

Amount awarded	Name of the organisation.	Boroughs Supporting	Category	Funding Criteria
£ 3,000	Aston-Mansfield	Epping Forest, Greenwich, Newham	Youth Project	raising aspirations of East Londoners
£ 1,200	Blind in Business	Open to all local boroughs with a focus on Waltham Forest, Tower Hamlets, Newham	Employability skills and pathways awareness	creating pathways into employment
£ 2,500	Chats Palace	Hackney	Mental Health and Well-being	building stronger, safer, healthier communities
£ 3,000	Clapton Common Boys Club	Hackney	Mentoring programme for NEETs	raising aspirations of East Londoners
£ 2,860	Community Food Enterprise Limited	Barking & Dagenham, Hackney, Havering, Redbridge, Tower Hamlets, Waltham Forest	Food Poverty	building stronger, safer, healthier communities

£ 2,918	Excellent Tutoring Resource ELLA	Barking & Dagenham	Training & Employability	creating pathways into employment
£ 1,225	Home-Start Havering	Havering	Early support for families	building stronger, safer, healthier communities
£ 2,661	Just Enough Global	Newham	Knife Crime awareness	building stronger, safer, healthier communities
£ 1,920	Maggie Keswick Jencks Cancer Caring Centres Trust (Maggie's <u>Barts</u> )	Barking & Dagenham, Hackney, Havering, Redbridge, Tower Hamlets, Waltham Forest	Health	building stronger, safer, healthier communities
£ 2,739	One Place East	Hackney	PRM (People with Reduced Mobility) and Mental health	building stronger, safer, healthier communities
£ 3,000	Royal Docks Learning & Activity Centre	Newham	Environment	creating more sustainable and greener communities
£ 3,000	<u>UpRising</u> Leadership	Barking & Dagenham, Greenwich, Hackney, Lambeth, Tower Hamlets	Employability	creating pathways into employment
£ 2,500	Young Lewisham Project	Greenwich, Lambeth, Lewisham, Southwark	Employability skills for at risk	creating pathways into employment
£ 3,000	Young stars elite U7	Tower Hamlets	Sports	building stronger, safer, healthier communities
<b>£ 35,523</b>	<b>14 Organisations</b>			

## APPENDIX 4

### INCENTIVES AND PENALTIES

The following table summarises the number of flights that incurred fixed penalties, credit removals and credit awards in the period between 1<sup>st</sup> January 2019 to 31<sup>st</sup> December 2019, by airline and aircraft type. Additionally, the total value of fixed penalties accrued and the residual number of credits are presented.

<b>Airline Code</b>	<b>Aircraft Code</b>	<b>Fixed Penalties (# aircraft)</b>	<b>Fixed Penalties (total value)</b>	<b># Credits Removed</b>	<b># Credits Awarded</b>	<b>Residual Credits</b>
AAB	C25A	0	£0	0	1	1
AAB	C25C	0	£0	0	2	2
AAB	C56X	0	£0	0	1	1
ABP	E135	0	£0	0	11	11
ADN	FA7X	0	£0	0	3	3
ADN	LJ45	0	£0	0	3	3
AHO	C560	0	£0	0	4	4
AHO	C56X	0	£0	0	40	40
AHO	CNJ	0	£0	0	3	3
AHO	FA7X	0	£0	0	1	1
AKK	F900	0	£0	0	1	1
AKK	FA7X	0	£0	0	2	2
AOJ	C25A	0	£0	0	1	1
AOJ	FA7X	0	£0	0	1	1
ASJ	C510	0	£0	0	8	8
ASJ	C680	0	£0	0	1	1
ASJ	CNJ	0	£0	0	3	3
ATW	F50	0	£0	0	185	185
AWU	C25A	0	£0	0	13	13
AWU	C525	0	£0	0	6	6
AZ8	E190	0	£0	0	1	1
AZA	E190	0	£0	1	151	150
BA9	A318	0	£0	0	1	1
BA9	B462	0	£0	0	1	1
BAA	GL7T	0	£0	0	1	1

<b>Airline Code</b>	<b>Aircraft Code</b>	<b>Fixed Penalties (# aircraft)</b>	<b>Fixed Penalties (total value)</b>	<b># Credits Removed</b>	<b># Credits Awarded</b>	<b>Residual Credits</b>
BAW	A318	0	£0	0	35	35
BBA	GL7T	0	£0	0	1	1
BCI	AT72	0	£0	2	0	-2
BCI	AT75	0	£0	0	8	8
BEE	B462	0	£0	0	2	2
BEE	DH4	0	£0	4	1	-3
BEE	DH8D	1	£600	33	29	-5
BEE	E190	0	£0	1	5	4
BFD	F2TH	0	£0	0	1	1
BLJ	C56X	0	£0	0	2	2
CAZ	DF3	0	£0	0	1	1
CAZ	F2TH	0	£0	0	4	4
CAZ	F2TX	0	£0	0	2	2
CAZ	FA7X	0	£0	0	14	14
CAZ	H25B	0	£0	0	2	2
CFE	B462	0	£0	1	9	8
CFE	E170	0	£0	9	14	5
CFE	E190	0	£0	8	128	120
CFE	RJ85	0	£0	6	0	-6
CFE	SB20	0	£0	3	18	15
CGL	GL7T	0	£0	0	1	1
CLF	C25A	0	£0	0	7	7
CLF	E135	0	£0	0	1	1
CLF	F2TX	0	£0	0	2	2
CSD	GLEX	0	£0	0	1	1
CTM	FA7X	0	£0	0	1	1
DAG	FA7X	0	£0	0	1	1
DAH	DA90	0	£0	0	4	4
DBE	F2TH	0	£0	0	8	8



<b>Airline Code</b>	<b>Aircraft Code</b>	<b>Fixed Penalties (# aircraft)</b>	<b>Fixed Penalties (total value)</b>	<b># Credits Removed</b>	<b># Credits Awarded</b>	<b>Residual Credits</b>
DBO	DF2	0	£0	0	1	1
DBO	F2TH	0	£0	0	9	9
DCA	C56X	0	£0	0	12	12
DCA	C680	0	£0	0	28	28
DCD	CNJ	0	£0	0	1	1
DCE	C25C	0	£0	0	1	1
DCE	C680	0	£0	0	1	1
DCH	C680	0	£0	0	1	1
DCM	CNJ	0	£0	0	1	1
DCS	C56X	0	£0	0	6	6
DGX	FA8X	0	£0	0	2	2
DIG	C25A	0	£0	0	1	1
DLH	E190	0	£0	0	66	66
DSO	FA7X	0	£0	0	3	3
ECC	GLEX	0	£0	0	1	1
EDC	C56X	0	£0	0	2	2
EDG	G280	0	£0	0	3	3
EFD	C25A	0	£0	0	6	6
EFD	C25C	0	£0	0	2	2
EFD	C680	0	£0	0	2	2
EFD	CNJ	0	£0	0	2	2
EIN	RJ85	0	£0	64	2	-62
ELJ	C25A	0	£0	0	3	3
ELJ	C56X	0	£0	0	4	4
ENZ	B462	0	£0	0	1	1
ETI	C25B	0	£0	0	1	1
ETI	CJ3	0	£0	0	2	2
ETI	CNJ	0	£0	0	1	1
EUW	C680	0	£0	0	6	6

<b>Airline Code</b>	<b>Aircraft Code</b>	<b>Fixed Penalties (# aircraft)</b>	<b>Fixed Penalties (total value)</b>	<b># Credits Removed</b>	<b># Credits Awarded</b>	<b>Residual Credits</b>
EZE	SB20	0	£0	1	9	8
FGP	FA7X	0	£0	0	1	1
FGS	C25B	0	£0	0	1	1
FHA	F2TH	0	£0	0	2	2
FHF	GLEX	0	£0	0	4	4
FHL	DA50	0	£0	0	1	1
FHL	DF3	0	£0	0	1	1
FHS	CNJ	0	£0	0	1	1
FHS	FA7X	0	£0	0	1	1
FYG	CCX	0	£0	0	1	1
FYG	CL65	0	£0	0	2	2
FYG	FA7X	0	£0	0	2	2
FYG	GLEX	0	£0	0	3	3
FYL	C25B	0	£0	0	1	1
GAC	C25A	0	£0	0	3	3
GAC	C510	0	£0	0	92	92
GAC	CNJ	0	£0	0	1	1
GDK	C56X	0	£0	0	1	1
GDK	C680	0	£0	0	1	1
GGA	C56X	0	£0	0	1	1
GLJ	GLEX	0	£0	0	1	1
GRN	CL60	0	£0	0	1	1
GSI	C56X	0	£0	0	1	1
GSP	C550	0	£0	0	1	1
GXI	DF3	0	£0	0	1	1
GXI	FA8X	0	£0	0	30	30
HBJ	CL60	0	£0	0	4	4
HBJ	CL65	0	£0	0	1	1
HBJ	FA7X	0	£0	0	5	5

<b>Airline Code</b>	<b>Aircraft Code</b>	<b>Fixed Penalties (# aircraft)</b>	<b>Fixed Penalties (total value)</b>	<b># Credits Removed</b>	<b># Credits Awarded</b>	<b>Residual Credits</b>
HBJ	FA8X	0	£0	0	1	1
HBJ	GLEX	0	£0	0	2	2
HHN	C680	0	£0	0	2	2
HTM	C56X	0	£0	0	6	6
IJM	GLEX	0	£0	0	3	3
IWA	C680	0	£0	0	1	1
IXR	C525	0	£0	0	1	1
JAR	C550	0	£0	0	2	2
JAS	DA90	0	£0	0	1	1
JAS	FA7X	0	£0	0	1	1
JCT	F900	0	£0	0	1	1
JDJ	C25A	0	£0	0	1	1
JET	C56X	0	£0	0	4	4
JFA	C25B	0	£0	0	8	8
JSY	C25A	0	£0	0	1	1
KBD	E55P	0	£0	0	5	5
KDB	E55P	0	£0	0	1	1
KL9	E190	0	£0	0	1	1
KLM	E190	0	£0	7	152	145
KOC	FA8X	0	£0	0	1	1
KRH	C56X	0	£0	0	6	6
KRH	E135	0	£0	0	4	4
LEA	C25B	0	£0	0	6	6
LEA	DA90	0	£0	0	1	1
LEA	FA7X	0	£0	0	2	2
LEA	H25B	0	£0	0	1	1
LGL	DH8D	0	£0	3	59	56
LMJ	GLEX	0	£0	0	5	5
LNA	DA90	0	£0	0	1	1

<b>Airline Code</b>	<b>Aircraft Code</b>	<b>Fixed Penalties (# aircraft)</b>	<b>Fixed Penalties (total value)</b>	<b># Credits Removed</b>	<b># Credits Awarded</b>	<b>Residual Credits</b>
LNK	C56X	0	£0	0	7	7
LNK	E135	0	£0	0	7	7
LOT	E190	0	£0	0	38	38
LX5	BCS1	0	£0	0	1	1
LXG	E55P	0	£0	0	1	1
MAB	CL60	0	£0	0	1	1
MGJ	DA90	0	£0	0	1	1
MIN	G280	0	£0	0	4	4
MJF	E135	0	£0	0	3	3
MMD	DF3	0	£0	0	1	1
MMD	F2TH	0	£0	0	4	4
MMD	FA7X	0	£0	0	3	3
MMD	FA8X	0	£0	0	4	4
N10	FA7X	0	£0	0	1	1
N14	GLEK	0	£0	0	6	6
N28	G280	0	£0	0	1	1
N30	GLEK	0	£0	0	2	2
N47	DA90	0	£0	0	2	2
N52	E190	0	£0	0	1	1
N77	CL60	0	£0	0	3	3
N78	F2TX	0	£0	0	2	2
N84	F2TH	0	£0	0	2	2
N88	C680	0	£0	0	3	3
N90	C25C	0	£0	0	1	1
N95	GL5T	0	£0	0	1	1
NJE	C56X	0	£0	0	237	237
NJE	C680	0	£0	0	63	63
NJE	C68A	0	£0	0	122	122
NJE	CJ8	0	£0	0	6	6

<b>Airline Code</b>	<b>Aircraft Code</b>	<b>Fixed Penalties (# aircraft)</b>	<b>Fixed Penalties (total value)</b>	<b># Credits Removed</b>	<b># Credits Awarded</b>	<b>Residual Credits</b>
NJE	E55P	0	£0	0	124	124
NJE	GL5T	0	£0	0	1	1
NJE	GLEX	0	£0	0	22	22
NJE	H25B	0	£0	0	20	20
OAW	E190	0	£0	0	1	1
OEF	C25A	0	£0	0	1	1
OEF	C510	0	£0	0	2	2
OEF	CNJ	0	£0	0	2	2
OEG	C56X	0	£0	0	1	1
OKR	G280	0	£0	0	1	1
OKS	E135	0	£0	0	1	1
OML	C680	0	£0	0	1	1
OOA	C25A	0	£0	0	2	2
OOG	CNJ	0	£0	0	1	1
OOG	DF3	0	£0	0	1	1
OOG	F2TX	0	£0	0	11	11
OOH	FA8X	0	£0	0	1	1
OON	E545	0	£0	0	2	2
OOS	C25C	0	£0	0	1	1
OOS	C56X	0	£0	0	1	1
OOX	C56X	0	£0	0	1	1
PHH	CL60	0	£0	0	2	2
PHJ	F2TH	0	£0	0	8	8
PHT	CNJ	0	£0	0	1	1
PHW	F2TH	0	£0	0	6	6
RBB	FA7X	0	£0	0	3	3
REN	C56X	0	£0	0	2	2
REN	C680	0	£0	0	1	1
RRR	B461	0	£0	0	2	2

<b>Airline Code</b>	<b>Aircraft Code</b>	<b>Fixed Penalties (# aircraft)</b>	<b>Fixed Penalties (total value)</b>	<b># Credits Removed</b>	<b># Credits Awarded</b>	<b>Residual Credits</b>
SER	C56X	0	£0	0	1	1
SHE	DF3	0	£0	0	7	7
SHE	FA7X	0	£0	0	67	67
SHE	FA8X	0	£0	0	11	11
SIO	DF3	0	£0	0	1	1
SNX	E550	0	£0	0	1	1
SPG	C25A	0	£0	0	1	1
STK	E190	0	£0	0	2	2
STQ	C25A	0	£0	0	1	1
STQ	E55P	0	£0	0	1	1
SUA	C56X	0	£0	0	4	4
SUI	DA90	0	£0	0	1	1
SUS	FRJ	0	£0	0	18	18
SUS	J328	0	£0	0	162	162
SVW	DF3	0	£0	0	1	1
SVW	F2TH	0	£0	0	3	3
SWR	221	0	£0	0	47	47
SWR	A221	0	£0	0	16	16
SWR	BCS1	0	£0	0	402	402
SWR	CS1	0	£0	0	1	1
SWR	E190	0	£0	0	31	31
SXN	C510	0	£0	0	7	7
SXN	E550	0	£0	0	7	7
TAP	DH8D	0	£0	1	0	-1
TAP	E190	0	£0	2	31	29
TVS	C680	0	£0	0	2	2
ULC	CNJ	0	£0	0	1	1
VPC	CL35	0	£0	0	3	3
VQB	FA7X	0	£0	0	1	1

<b>Airline Code</b>	<b>Aircraft Code</b>	<b>Fixed Penalties (# aircraft)</b>	<b>Fixed Penalties (total value)</b>	<b># Credits Removed</b>	<b># Credits Awarded</b>	<b>Residual Credits</b>
WGT	DF3	0	£0	0	1	1
WGT	FA7X	0	£0	0	5	5
WGT	FA8X	0	£0	0	4	4
WTG	FA7X	0	£0	0	3	3
XGO	P180	1	£600	3	0	-4
XJC	C550	0	£0	0	43	43
XJC	H25B	0	£0	0	4	4
XRO	C680	0	£0	0	3	3
XRO	DA90	0	£0	0	2	2
XRO	F900	0	£0	0	2	2

**Table A4.1: 2019 Penalties and Credits Summary**

## APPENDIX 5

### SUMMARY OF EFPS DATA



The following table summarises the Engine Run on Stand (ERS), Taxi Time on Arrival (TTA), and Taxi Time on Departure (TTD) times for 2019, by airline and aircraft type. Airline and aircraft type combinations that operated less than once per week on average have been grouped in the “Other” category.

Aircraft Code	Airline	Count of TTA	Average of TTA (mm:ss)	Count of ERS	Average of ERS (mm:ss)	Count of TTD	Average of TTD (mm:ss)
A318	British Airways	260	03:42	261	04:31	261	07:43
AT72	Blue Islands	549	04:17	549	05:38	549	08:30
B462	BA CityFlyer	194	03:27	195	05:14	195	07:18
BCS1	Swiss International Air Lines	1377	03:14	1377	06:06	1377	07:29
C510	Globe Air	135	03:02	134	08:14	134	08:38
C550	Xclusive Jet Charter Limited	51	03:29	52	08:20	52	08:43
C56X	Air Hamburg	61	03:15	61	06:29	61	08:19
C56X	NetJets Transportes Aereos	338	03:10	338	05:19	338	08:37
C68A	NetJets Transportes Aereos	286	03:20	286	06:25	286	08:21
DH8D	Flybe	4174	03:38	4174	04:22	4174	07:36
DH8D	Luxair	1802	03:37	1802	05:16	1802	06:38
E170	BA CityFlyer	4631	03:58	4630	03:54	4630	08:46
E190	Alitalia	1719	03:56	1719	04:17	1719	07:16
E190	Flybe	90	04:29	90	04:14	90	08:54
E190	BA CityFlyer	14546	03:49	14533	04:18	14533	08:12
E190	Lufthansa	964	04:04	964	04:34	964	08:43
E190	KLM Royal Dutch Airlines	2490	04:01	2491	03:49	2491	07:58
E190	LOT Polish Airlines	1536	04:41	1536	04:09	1536	08:57
E190	Swiss International Air Lines	1029	03:45	1028	04:42	1028	07:07
E190	TAP Portugal	724	04:12	724	04:44	724	07:01
E55P	NetJets Transportes Aereos	176	03:25	176	05:34	176	08:29

<b>Aircraft Code</b>	<b>Airline</b>	<b>Count of TTA</b>	<b>Average of TTA (mm:ss)</b>	<b>Count of ERS</b>	<b>Average of ERS (mm:ss)</b>	<b>Count of TTD</b>	<b>Average of TTD (mm:ss)</b>
F50	Air Antwerp	249	03:35	249	06:13	249	07:26
FA7X	Shell Aircraft	89	03:56	89	06:07	89	09:14
J328	Sun Air of Scandinavia	484	04:10	484	04:11	484	09:27
RJ85	BA CityFlyer	78	03:28	77	06:08	77	07:40
RJ85	Aer Lingus	1828	03:34	1826	05:08	1826	07:50
SB20	BA CityFlyer	891	03:46	892	04:17	892	08:10
SB20	Eastern Airways	143	03:27	143	03:49	143	07:16
<b>Other</b>		1131	03:36	1148	05:32	1148	09:02
<b>Overall</b>		42025	03:49	42028	04:30	42028	08:04

**Table A5.1: 2019 Ground Running Summary**

## APPENDIX 6

### GROUND RUNNING OF ENGINES

Table A6.1 sets out the official record of ground running of engines for test and maintenance for 2019.

Date	Location	A/C Orientation	Type of Run / Power Set	A/C Type	Reg.	Start Time	Stop Time	Duration (hh:mm)
02/01/2018	Stand 9	NW	Ground Idle	E190	GLCYY	09:15	09:27	00:12
02/01/2019	Stand 24	NW	Ground Idle	E190	GLCYV	19:09	19:17	00:08
10/01/2019	Stand 13	E	Ground Idle	E190	GLCYW	07:08	07:20	00:12
10/01/2019	Stand 1	NW	Ground Idle	E190	GLCYL	11:16	11:21	00:05
11/01/2019	Stand 22	W	High Power	E190	GLCYO	16:23	16:49	00:26
12/01/2019	Abeam 22	W	High Power	E190	GLCYJ	08:03	08:43	00:40
12/01/2019	Stand 10	NW	Ground Idle	E190	GLCYS	11:56	11:59	00:03
13/01/2019	Stand 13	NW	Ground Idle	DH8D	GJEDP	15:55	16:06	00:11
14/01/2019	Abeam 22	W	High Power	SB20	GLGNS	11:18	11:29	00:11
15/01/2019	Stand 24	NW	Ground Idle	DH8D	GJEDU	17:53	17:57	00:04
18/01/2019	Stand 12	NW	Ground Idle	DH8D	GJEDU	08:22	08:32	00:10
20/01/2019	Stand 8	NW	Ground Idle	E190	GLCYX	12:44	12:52	00:08
21/01/2019	Abeam 13	W	Ground Idle	E190	GLCYX	21:35	21:46	00:11
01/02/2019	Stand 21	-	Ground Idle	DH8D	GJEDM	19:01	19:06	00:05
04/02/2019	JC	E	Ground Idle	H25B	CSDUC	20:55	21:06	00:11
07/02/2019	Stand 2	NW	Ground Idle	DH8D	GJEDM	08:55	08:59	00:04
07/02/2019	Stand 8	NW	Ground Idle	E190	GLCYP	13:39	13:44	00:05
08/02/2019	Stand 24	NW	Ground Idle	BCS1	HBIBH	08:10	08:16	00:06
12/02/2019	Stand 8	NW	Ground Idle	E190	GLCYV	06:38	06:45	00:07
15/02/2019	Stand 1	NW	Ground Idle	E190	GLCYW	06:38	06:44	00:06
15/02/2019	Stand 1	NW	Ground Idle	E190	GLCYW	07:29	07:34	00:05
21/02/2019	Stand 1	NW	Ground Idle	B462	GJOTR	06:42	06:46	00:04
28/02/2019	Stand 24	-	Ground Idle	DH8D	GJEDR	19:08	19:14	00:06
01/03/2019	Stand 13	N	Ground Idle	DH8D	GJEDR	08:38	08:47	00:09
06/03/2019	Stand 9	NW	Ground Idle	E190	GLCYN	06:45	06:50	00:05
06/03/2019	Stand 2	NW	Ground Idle	DH8D	GPRPL	09:25	09:36	00:11
06/03/2019	Stand 23	NW	Ground Idle	DH8D	GPRPJ	11:36	11:40	00:04
07/03/2019	Abeam 22	W	High Power	E190	GLCYU	15:35	16:03	00:28
08/03/2019	Stand 2	NW	Ground Idle	DH8D	GPRPB	10:36	10:42	00:06

Date	Location	A/C Orientation	Type of Run / Power Set	A/C Type	Reg.	Start Time	Stop Time	Duration (hh:mm)
12/03/2019	Stand 24	-	Ground Idle	DH8D	GPRPE	08:49	08:53	00:04
12/03/2019	Stand 24	-	Ground Idle	DH8D	GPRPE	08:58	09:02	00:04
15/03/2019	JC	-	Ground Idle	P180	DIJET	15:23	15:34	00:11
15/03/2019	JC	-	Ground Idle	P180	DIJET	15:50	15:55	00:05
15/03/2019	JC	-	Ground Idle	C680	CSLTE	18:44	18:50	00:06
22/03/2019	Stand 21	NW	Ground Idle	DH8D	GPRPG	16:51	16:55	00:04
22/03/2019	Stand 21	NW	Ground Idle	DH8D	GPRPG	16:59	17:02	00:03
24/03/2019	Stand 22	W	High Power	E190	GLCYN	12:55	13:16	00:21
24/03/2019	Stand 24	NW	Ground Idle	DH8D	GJEDU	17:58	18:05	00:07
26/03/2019	Abeam 22	W	High Power	E190	GLCYN	11:13	11:30	00:17
26/03/2019	Stand 24	NW	Ground Idle	E190	GLCYN	12:35	12:40	00:05
27/03/2019	Abeam 22	W	High Power	E190	GLCYN	14:08	14:32	00:24
30/03/2019	Stand 22	W	High Power	E190	GLCYN	08:03	08:30	00:27
02/04/2019	Stand 3	NW	Ground Idle	E190	GLCYY	14:54	14:56	00:02
02/04/2019	Stand 21	NW	Ground Idle	E190	GLCYY	17:24	17:31	00:07
04/04/2019	Stand 1	NW	Ground Idle	RJ85	EIRJW	15:42	15:44	00:02
07/04/2019	Stand 4	NW	Ground Idle	E190	GLCYN	11:39	11:44	00:05
07/04/2019	Stand 7	NW	Ground Idle	E190	GLCYK	11:59	12:09	00:10
09/04/2019	Stand 4	NW	Ground Idle	E190	GLCYL	05:31	05:36	00:05
09/04/2019	Stand 2	NW	Ground Idle	E190	GLCYO	19:14	19:19	00:05
09/04/2019	Stand 2	NW	Ground Idle	E190	GLCYO	19:53	19:59	00:06
11/04/2019	Stand 23	NW	Ground Idle	E190	GLCYX	05:31	05:36	00:05
11/04/2019	Stand 23	NW	Ground Idle	E190	GLCYX	08:08	08:12	00:04
11/04/2019	Stand 6	NW	Ground Idle	E190	GLCYX	13:09	13:13	00:04
11/04/2019	Stand 6	NW	Ground Idle	E190	GLCYX	14:51	14:55	00:04
11/04/2019	Stand 6	NW	Ground Idle	E190	GLCYX	17:05	17:09	00:04
12/04/2019	Abeam 13	E	Ground Idle	E190	GLCYX	06:20	06:29	00:09
12/04/2019	Stand 8	NW	Ground Idle	E190	GLCYY	10:50	10:57	00:07
12/04/2019	Stand 7	NW	Ground Idle	E190	GLCYX	15:09	15:16	00:07
12/04/2019	Abeam 13	E	Ground Idle	E190	GLCYX	20:15	20:18	00:03
12/04/2019	Stand 23	NW	Ground Idle	E170	GLCYF	20:16	20:18	00:02
13/04/2019	Abeam 13	E	Ground Idle	E190	GLCYX	06:02	06:17	00:15

Date	Location	A/C Orientation	Type of Run / Power Set	A/C Type	Reg.	Start Time	Stop Time	Duration (hh:mm)
13/04/2019	Abeam 13	E	Ground Idle	E190	GLCYX	10:00	10:24	00:24
14/04/2019	Abeam 13	E	Ground Idle	E190	GLCYX	13:09	13:15	00:06
15/04/2019	Stand 3	NW	Ground Idle	RJ85	EIRJI	10:36	10:38	00:02
15/04/2019	Stand 14	NW	Ground Idle	RJ85	EIRJI	12:55	13:00	00:05
16/04/2019	Stand 2	NW	Ground Idle	E190	EIGHK	05:31	05:36	00:05
25/04/2019	Stand 7	NW	Ground Idle	E190	GLCYV	11:10	11:20	00:10
30/04/2019	Abeam 13	E	Ground Idle	E170	GLCYE	08:43	08:46	00:03
30/04/2019	Abeam 13	E	Ground Idle	E170	GLCYE	11:41	11:45	00:04
03/05/2019	Stand 6	NW	Ground Idle	E190	GLCYV	13:25	13:31	00:06
03/05/2019	Stand 6	NW	Ground Idle	E190	GLCYV	13:52	13:57	00:05
05/05/2019	Stand 22	NW	Ground Idle	E190	GLCYV	11:56	12:00	00:04
09/05/2019	Abeam 13	E	Ground Idle	E190	GLCYK	19:07	19:12	00:05
10/05/2019	Abeam 22	W	High Power	E190	GLCYO	10:16	10:26	00:10
13/05/2019	JC	-	Ground Idle	C68A	CSLTG	19:15	19:18	00:03
14/05/2019	Stand 24	NW	Ground Idle	BCS1	HBJBB	13:53	13:58	00:05
28/05/2019	Abeam 22	W	High Power	E190	GLCYK	16:22	16:41	00:19
29/05/2019	Stand 22	-	Ground Idle	DH8D	GRPRD	-	-	-
30/05/2019	Abeam 22	W	High Power	E190	GLCYK	08:56	09:28	00:32
31/05/2019	Stand 9	NW	Ground Idle	E190	GLCAA	05:40	05:53	00:13
02/06/2019	Stand 10	NW	Ground Idle	E170	GLCYD	11:43	11:48	00:05
02/06/2019	Stand 24	NW	Ground Idle	DH8D	GJEDP	12:10	12:14	00:04
03/06/2019	Stand 8	NW	Ground Idle	E190	GLCYV	05:53	05:58	00:05
04/06/2019	Stand 22	NW	Ground Idle	E190	GLCYV	05:52	05:55	00:03
05/06/2019	Stand 4	NW	Ground Idle	E190	GLCYO	19:19	19:21	00:02
09/06/2019	Stand 4	NW	Ground Idle	E170	GLCYD	11:37	11:44	00:07
11/06/2019	Abeam 22	W	High Power	E190	GLCYK	14:54	15:05	00:11
13/06/2019	Stand 24	NW	Ground Idle	E190	GLCYL	06:47	06:51	00:04
13/06/2019	Stand 5	NW	Ground Idle	DH8D	LXLGG	20:00	20:06	00:06
14/06/2019	Stand 2	NW	Ground Idle	E190	GLCYS	05:30	05:35	00:05
14/06/2019	Stand 2	NW	Ground Idle	DH8D	GJEDP	08:36	08:42	00:06
14/06/2019	Stand 1	NW	Ground Idle	DH8D	GJEDP	11:06	11:10	00:04
17/06/2019	Stand 7	NW	Ground Idle	DH8D	LXLGN	15:36	15:39	00:03

Date	Location	A/C Orientation	Type of Run / Power Set	A/C Type	Reg.	Start Time	Stop Time	Duration (hh:mm)
22/06/2019	Stand 3	NW	Ground Idle	E190	EIGHK	07:12	07:21	00:09
23/06/2019	Stand 5	NW	Ground Idle	DH8D	LXLQC	16:20	16:25	00:05
24/06/2019	Stand 7	NW	Ground Idle	E190	GLCYN	11:15	11:20	00:05
24/06/2019	Stand 10	NW	Ground Idle	RJ85	EIRJU	19:07	19:14	00:07
24/06/2019	Stand 10	NW	Ground Idle	RJ85	EIRJU	19:35	19:43	00:08
24/06/2019	Stand 10	NW	Ground Idle	RJ85	EIRJU	20:15	20:18	00:03
25/06/2019	Stand 24	NW	Ground Idle	BCS1	HBJBD	19:15	19:17	00:02
26/06/2019	Stand 13	NW	Ground Idle	RJ85	EIRJU	10:32	10:38	00:06
26/06/2019	JC	E	Ground Idle	FA7X	HBJSM	13:32	13:38	00:06
30/06/2019	Stand 8	NW	Ground Idle	E190	GLCYW	11:30	11:39	00:09
04/07/2019	Stand 10	NW	Ground Idle	E190	GLCYN	08:45	08:51	00:06
09/07/2019	Stand 21	-	Ground Idle	SB20	GLGNP	-	-	-
09/07/2019	-	E	Ground Idle	E170	GLCYE	18:41	18:55	00:14
10/07/2019	Stand 10	NW	Ground Idle	E190	GLCYN	05:30	05:37	00:07
10/07/2019	Stand 10	NW	Ground Idle	E190	GLCYN	06:02	06:12	00:10
12/07/2019	Stand 21	NW	Ground Idle	A318	GEUNA	07:35	07:40	00:05
13/07/2019	Stand 10	NW	Ground Idle	E190	GLCYR	05:43	05:47	00:04
13/07/2019	Stand 21	NW	Ground Idle	A318	GEUNA	10:11	10:16	00:05
19/07/2019	Abeam 22	W	High Power	E190	GLCYJ	14:29	14:49	00:20
28/07/2019	Stand 23	NW	Ground Idle	E190	GLCY	19:42	19:54	00:12
29/07/2019	Stand 9	NW	Ground Idle	E190	GLCYP	16:09	16:23	00:14
29/07/2019	Stand 4	NW	Ground Idle	DH8D	LXLGM	19:28	19:33	00:05
30/07/2019	Abeam 13	E	Ground Idle	E170	GLCYG	14:59	15:10	00:11
06/08/2019	Stand 10	NW	Ground Idle	E190	GLCYH	13:24	13:30	00:06
10/08/2019	Stand 6	NW	Ground Idle	E190	GLCYX	06:06	06:10	00:04
13/08/2019	Abeam 23	W	High Power	E190	GLCYW	14:22	14:55	00:33
14/08/2019	Stand 21	NW	Ground Idle	E190	GLCYT	16:11	16:30	00:19
18/08/2019	Stand 6	NW	Ground Idle	E170	GLCYF	11:30	11:37	00:07
18/08/2019	Stand 1	NW	Ground Idle	RJ85	EIRJZ	13:03	13:05	00:02
18/08/2019	Stand 1	NW	Ground Idle	RJ85	EIRJZ	14:44	14:46	00:02
26/08/2019	Stand 7	NW	Ground Idle	E190	GLCYO	08:10	08:19	00:09
26/08/2019	-	E	Ground Idle	E170	GLCYD	08:40	08:47	00:07



Date	Location	A/C Orientation	Type of Run / Power Set	A/C Type	Reg.	Start Time	Stop Time	Duration (hh:mm)
06/09/2019	Stand 21	NW	Ground Idle	A318	GEUNA	08:44	08:52	00:08
07/09/2019	Stand 9	NW	Ground Idle	E190	GLCYO	05:38	05:44	00:06
07/09/2019	Stand 10	NW	Ground Idle	E190	GLCYX	05:45	05:50	00:05
10/09/2019	Abeam 13	E	Ground Idle	E190	GLCYX	06:33	06:37	00:04
12/09/2019	Stand 7	NW	Ground Idle	E190	EIRNG	14:39	14:43	00:04
17/09/2019	Abeam 22	W	Ground Idle	E190	GLCYW	14:15	14:21	00:06
17/09/2019	Stand 7	NW	Ground Idle	E190	GLCYY	16:05	16:08	00:03
18/09/2019	Stand 4	NW	Ground Idle	E190	GLCYY	09:43	09:46	00:03
02/10/2019	Abeam 22	W	High Power	E190	GLCYU	14:29	15:05	00:36
03/10/2019	Abeam 22	W	High Power	DH8D	LXLGN	09:17	09:21	00:04
04/10/2019	Stand 22	NW	Ground Idle	DH8D	LXLGN	06:40	06:44	00:04
06/10/2019	Stand 7	NW	Ground Idle	E170	GLCYG	12:12	12:21	00:09
06/10/2019	Stand 24	NW	Ground Idle	E190	GLCYN	13:13	13:24	00:11
13/10/2019	Abeam 13	E	Ground Idle	E190	GLCYV	11:30	11:42	00:12
13/10/2019	Stand 10	NW	Ground Idle	E190	GLCYL	14:46	14:55	00:09
15/10/2019	JC	E	Ground Idle	GLEX	OOLML	10:39	10:43	00:04
22/10/2019	Stand 8	NW	Ground Idle	DH8D	GPRPI	11:45	11:49	00:04
01/11/2019	Abeam 13	W	Ground Idle	E170	GLCYI	12:12	12:19	00:07
04/11/2019	Abeam 13	W	Ground Idle	E190	GLCYY	15:48	15:53	00:05
06/11/2019	Stand 6	N	Ground Idle	DH8D	LXLGE	19:29	19:32	00:03
07/11/2019	Stand 5	NW	Ground Idle	E190	GLCYW	11:02	11:08	00:06
08/11/2019	Stand 21	NW	Ground Idle	A318	GEUNA	07:59	08:03	00:04
09/11/2019	Stand 5	NW	Ground Idle	DH8D	LXLGE	09:20	09:25	00:05
09/11/2019	Stand 5	NW	Ground Idle	DH8D	LXLGF	09:56	10:00	00:04
10/11/2019	Stand 6	NW	Ground Idle	E190	GLCYJ	13:38	13:42	00:04
15/11/2019	Stand 24	NW	Ground Idle	E190	GLCYR	06:36	06:53	00:17
16/11/2019	Abeam 22	W	High Power	E190	GLCYV	10:15	10:37	00:22
20/11/2019	Abeam 22	W	High Power	E190	GLCYV	14:07	14:16	00:09
21/11/2019	Stand 10	NW	Ground Idle	E190	GLCAA	06:33	06:39	00:06
21/11/2019	Stand 8	NW	Ground Idle	E190	BLCAB	10:55	10:59	00:04
21/11/2019	Stand 8	NW	Ground Idle	E190	GLCAB	11:15	11:20	00:05
23/11/2019	Stand 23	NW	Ground Idle	DH8D	GJEDR	09:42	10:07	00:25

Date	Location	A/C Orientation	Type of Run / Power Set	A/C Type	Reg.	Start Time	Stop Time	Duration (hh:mm)
24/11/2019	Abeam 23	W	High Power	E190	GLCYU	14:24	14:41	00:17
26/11/2019	Stand 3	NW	Ground Idle	E190	GLCYM	06:34	06:38	00:04
26/11/2019	Abeam 13	E	Ground Idle	E190	EIRNE	09:39	09:45	00:06
02/12/2019	Stand 21	NW	Ground Idle	A318	GEUNA	08:49	09:01	00:12
02/12/2019	Stand 10	NW	Ground Idle	E190	GLCYZ	09:18	09:31	00:13
07/12/2019	Stand 21	NW	Ground Idle	A318	GEUNA	08:12	-	-
08/12/2019	Stand 23	NW	Ground Idle	E190	GLCYL	13:33	13:50	00:17
08/12/2019	Abeam 22	W	High Power	E190	GLCYN	14:47	15:09	00:22
09/12/2019	Stand 5	E	Ground Idle	E190	GLCYY	13:23	13:35	00:12
09/12/2019	Abeam 13	E	Ground Idle	E170	GLCYI	14:57	15:08	00:11
10/12/2019	Stand 21	NW	Ground Idle	A318	GEUNA	10:41	10:44	00:03
10/12/2019	Stand 21	NW	Ground Idle	A318	GEUNA	16:41	16:48	00:07
12/12/2019	Stand 24	NW	Ground Idle	E190	GLCYM	06:44	06:48	00:04
12/12/2019	Stand 10	NW	Ground Idle	E170	GLCYI	11:53	11:59	00:06
14/12/2019	Stand 10	NW	Ground Idle	E190	GLCYP	11:55	11:59	00:04
15/12/2019	Abeam 22	W	High Power	E190	GLCYM	12:33	12:41	00:08
16/12/2019	Abeam 22	W	High Power	E170	GLCYI	13:30	13:44	00:14
18/12/2019	Abeam 22	W	High Power	E190	GLCYX	14:08	14:26	00:18
19/12/2019	Abeam 22	W	High Power	E170	GLCYE	11:40	11:56	00:16
22/12/2019	Stand 22	NW	Ground Idle	DH8D	GFLBD	17:29	17:35	00:06
27/12/2019	Stand 21	NW	Ground Idle	DH8D	GPRPJ	18:51	18:53	00:02
28/12/2019	Stand 13	NW	Ground Idle	DH8D	-	11:32	11:33	00:01
28/12/2019	Stand 13	NW	Ground Idle	DH8D	-	11:44	11:45	00:01
29/12/2019	Stand 13	NW	Ground Idle	DH8D	GPRPJ	13:02	13:08	00:06
29/12/2019	Abeam 22	W	High Power	DH8D	GPRPJ	17:00	17:16	00:16

**Table A6.1: Official record of ground running of engines for test and maintenance for 2019**

Table A6.2 gives a summary of high power running for 2019.

<b>Month</b>	<b>Minutes</b>	<b>A/C Type</b>
January	77	E190/SB20
February	0	-
March	117	E190
April	0	-
May	61	E190
June	11	E190
July	20	E190
August	33	E190
September	0	-
October	40	DH8D/E190
November	48	E190
December	94	DH8D/E170/E190
<b>Total</b>	<b>501</b>	-

**Table A6.2: Summary of high power ground running, 2019**

**Prediction of engine ground running as Appendix D5 of NOMMS**

**Item (A) Determination of largest monthly duration:**

As indicated in Table A6.2, that occurred in March 2019, specifically –

117 minutes of E190

*117 minutes total ground running*

**Item (B) Determination of average daily duration during worst case**

117 minutes in a month of 31 days

3.8 minutes average daily duration

**Item (C) Compute resultant noise level at reference distance (152 m)**

Resultant noise level at 152 m

$$= \text{reference noise level} + 10 \log(\text{duration}) - 10 \log(12 \times 60)$$

$$= 84 + 10 \log(3.8) - 10 \log(12 \times 60)$$

$$= 84 + 5.8 - 28.6$$

$$= 61.2 \text{ dB } L_{Aeq,12h}$$

**Item (D) Compute level at nearest properties in Newland Street**

Aircraft at Stand 24

Noise level at Newland Street

$$= \text{resultant noise level} - 26.7 \log(255/152)$$

$$= 61.2 - 6.0$$

$$= 55.2 \text{ dB } L_{Aeq,12h}$$

LCA ground running noise limit = 60 dB  $L_{Aeq,12h}$

**Conclusion**

In 2019 LCA's ground running was 4.8 dB below the ground running noise limit.

## APPENDIX 7

### NOISE CONTOURS

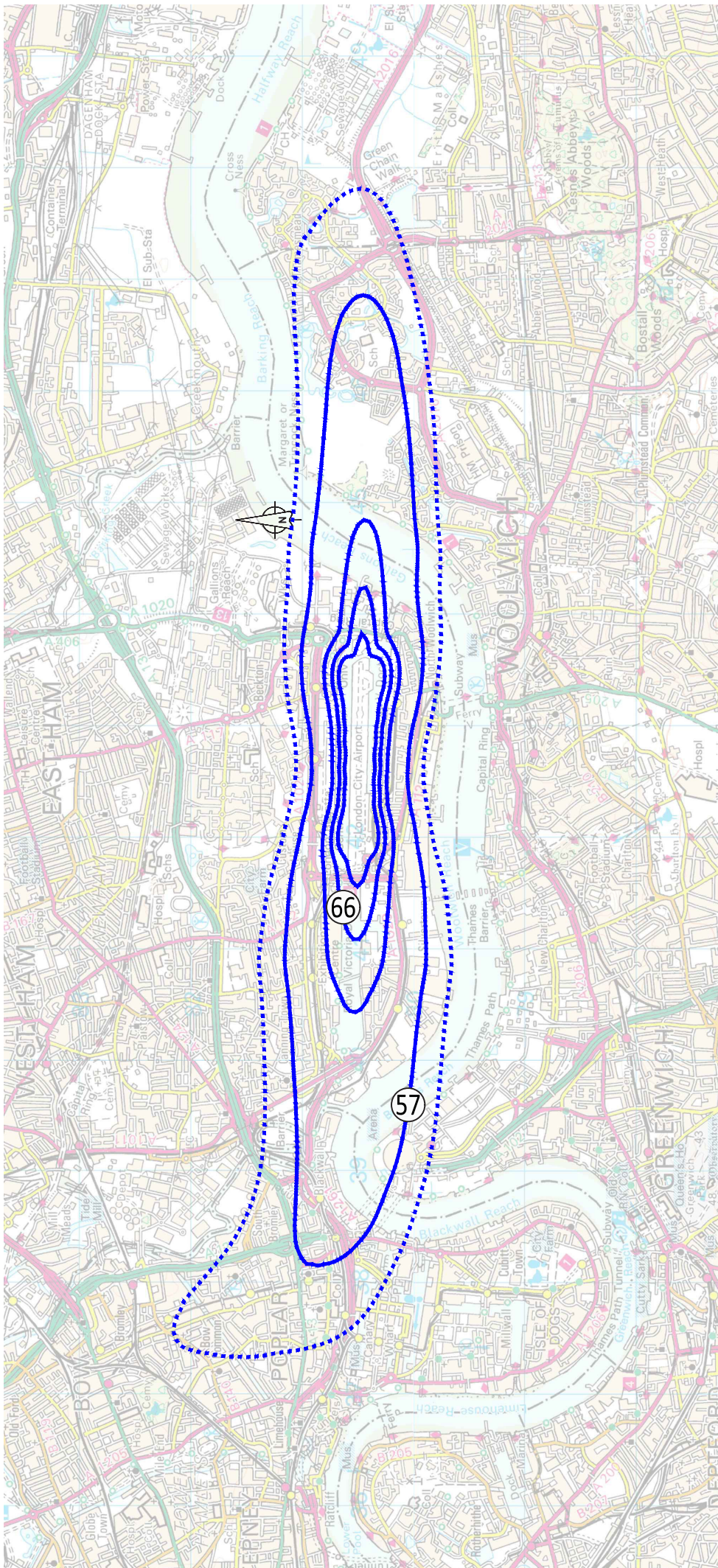
The following noise contours are presented in this appendix:

- 2019 Actual average mode summer daytime
- 1998 Planning Contour
- SIS First Tier Eligibility Boundary
- SIS Intermediate Tier Eligibility Boundary
- SIS Second Tier Eligibility Boundary



**LEGEND:**

- ..... 54 dB Noise Contour
- 57, 63, 66 and 69 dB Noise Contours




**REVISIONS**

**Bickerdike  
Allen  
Partners**  
Architecture  
Acoustics  
Technology

121 Salusbury Road, London, NW6 6RG  
Email: [mail@bickerdikeallen.com](mailto:mail@bickerdikeallen.com)  
[www.bickerdikeallen.com](http://www.bickerdikeallen.com)

T: 0207 625 4411  
F: 0207 625 0250

**London City Airport**

**Actual Noise Contours  
Summer 2019 Average Mode**

**DRAWN: NW**

**CHECKED: DC**

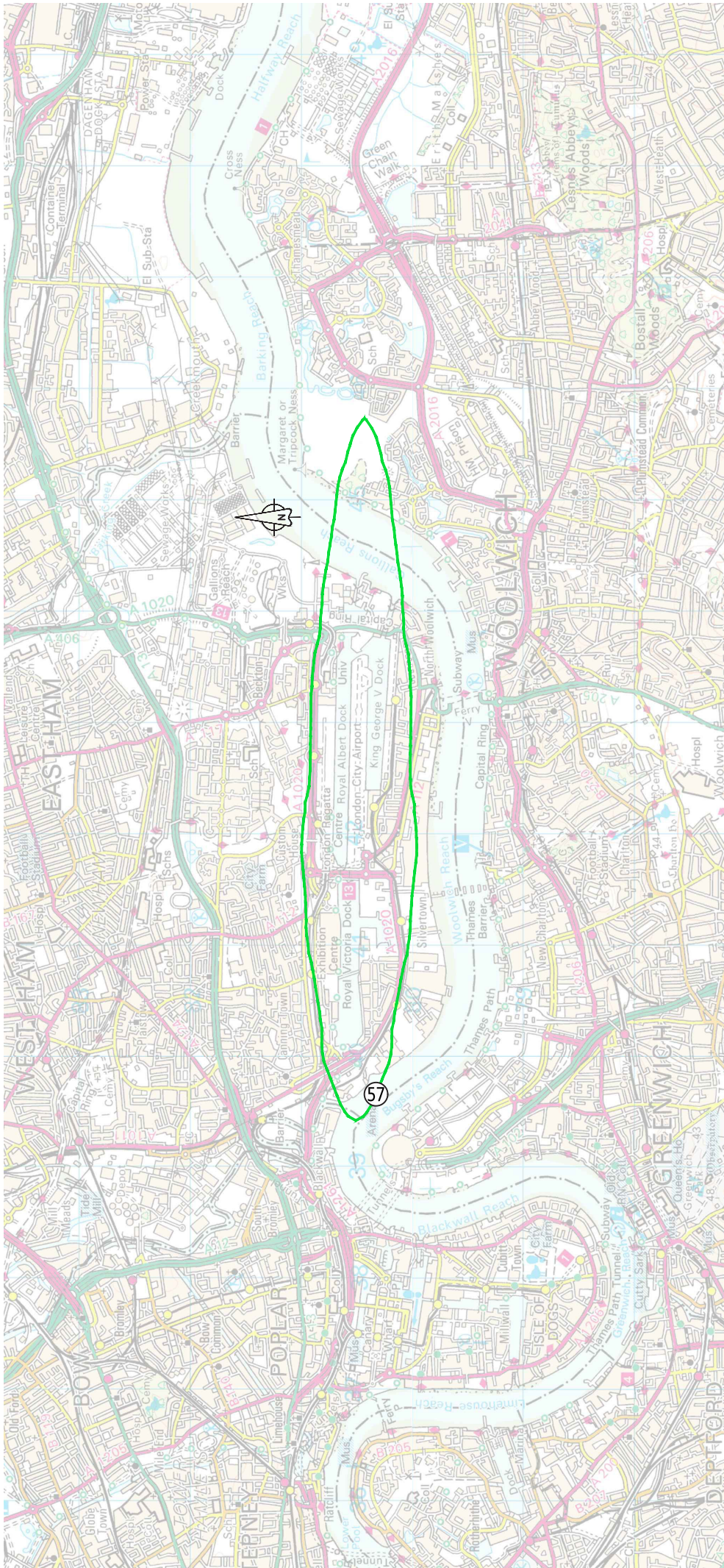
**DATE: 28/04/2020**

**SCALE: 1:50000@A4**

**FIGURE No:**

**A11327\_10\_DR001\_1.0**





Ordnance Survey map licensed to London City Airport Ltd  
100018300

LEGEND:  
Noise Contours


REVISIONS

**Bickerdike  
Allen  
Partners**  
Architecture  
Acoustics  
Technology

121 Salusbury Road, London, NW6 6RG  
Email: [mail@bickerdikeallen.com](mailto:mail@bickerdikeallen.com) T: 0207 625 4411  
[www.bickerdikeallen.com](http://www.bickerdikeallen.com) F: 0207 625 0250

London City Airport

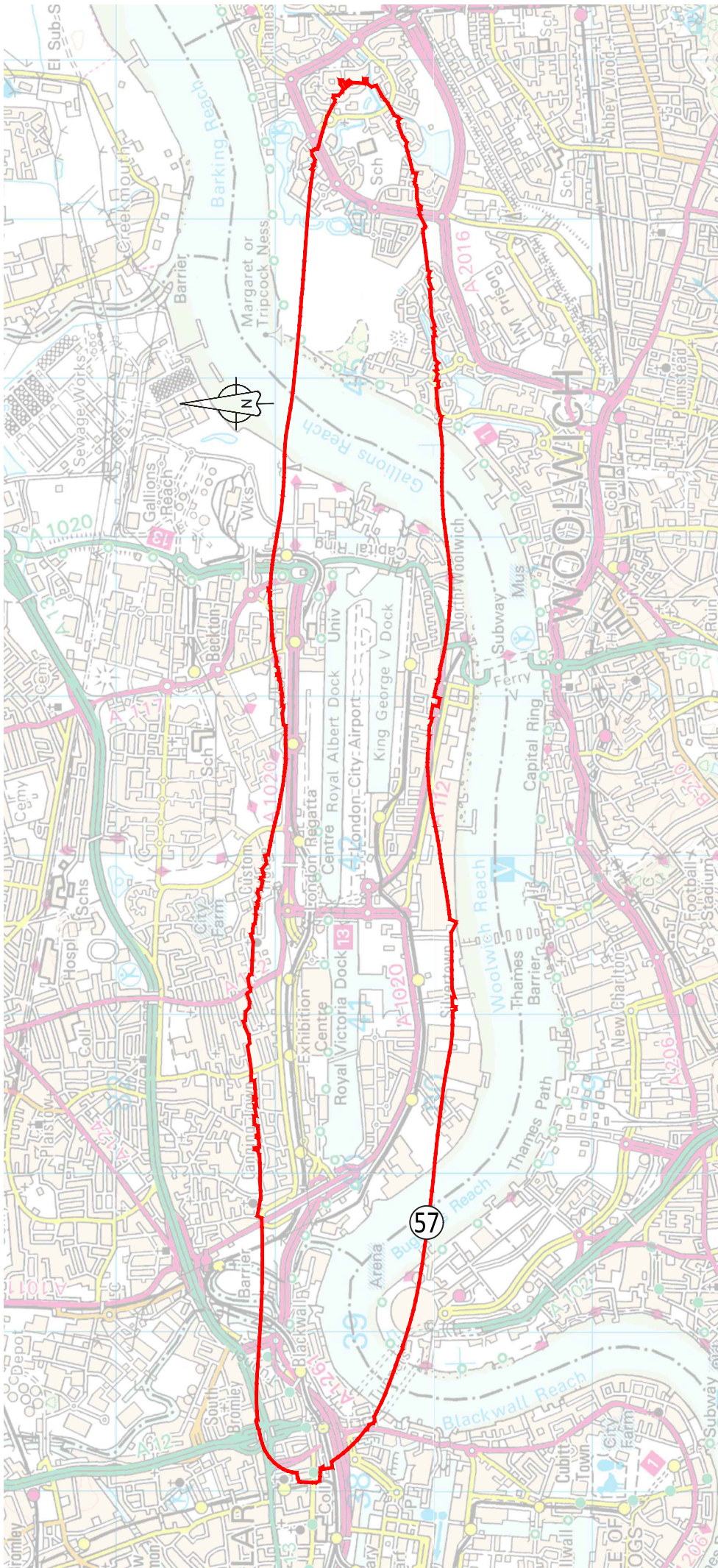
L<sub>Aeq,16h</sub> Noise Contours  
1998 Planning Contour

DRAWN: NW CHECKED: DC

DATE: 28/04/2020 SCALE: 1:50000@A4

FIGURE No:  
A11327\_10\_DR002\_1.0





Ordnance Survey map licensed to London City Airport Ltd  
100018300

**LEGEND:**

— Noise Contours

**REVISIONS**

**Bickerdike  
Allen  
Partners**  
Architecture  
Acoustics  
Technology

121 Salusbury Road, London, NW6 6RG  
Email: [mail@bickerdikeallen.com](mailto:mail@bickerdikeallen.com)  
[www.bickerdikeallen.com](http://www.bickerdikeallen.com)

T: 0207 625 4411  
F: 0207 625 0250

**London City Airport**

**Residential First Tier Works and  
Public Buildings First Tier Works  
Eligibility Boundary**

DRAWN: DR

CHECKED: NW

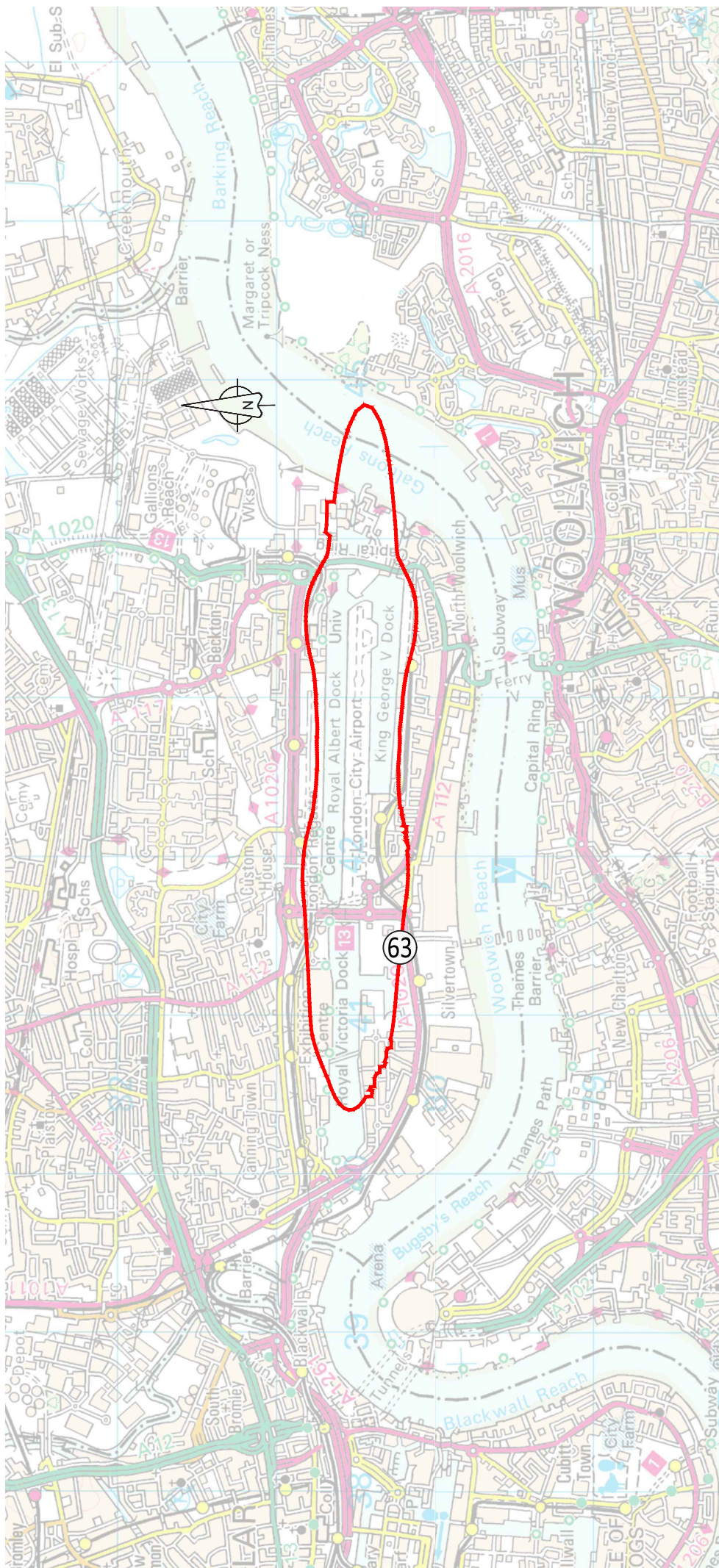
DATE: 20/05/2020

SCALE: 1:35000@A4

FIGURE No:

**A11327\_11\_DR003\_1.0**





Ordnance Survey map licensed to London City Airport Ltd  
100018300

**LEGEND:**

— Noise Contours

**REVISIONS**

**Bickerdike  
Allen  
Partners**  
Architecture  
Acoustics  
Technology

121 Salusbury Road, London, NW6 6RG  
Email: [mail@bickerdikeallen.com](mailto:mail@bickerdikeallen.com)  
[www.bickerdikeallen.com](http://www.bickerdikeallen.com)

T: 0207 625 4411  
F: 0207 625 0250

**London City Airport**

**Residential Intermediate Tier Works and  
Public Buildings Intermediate Tier Works  
Eligibility Boundary**

DRAWN: DR

CHECKED: NW

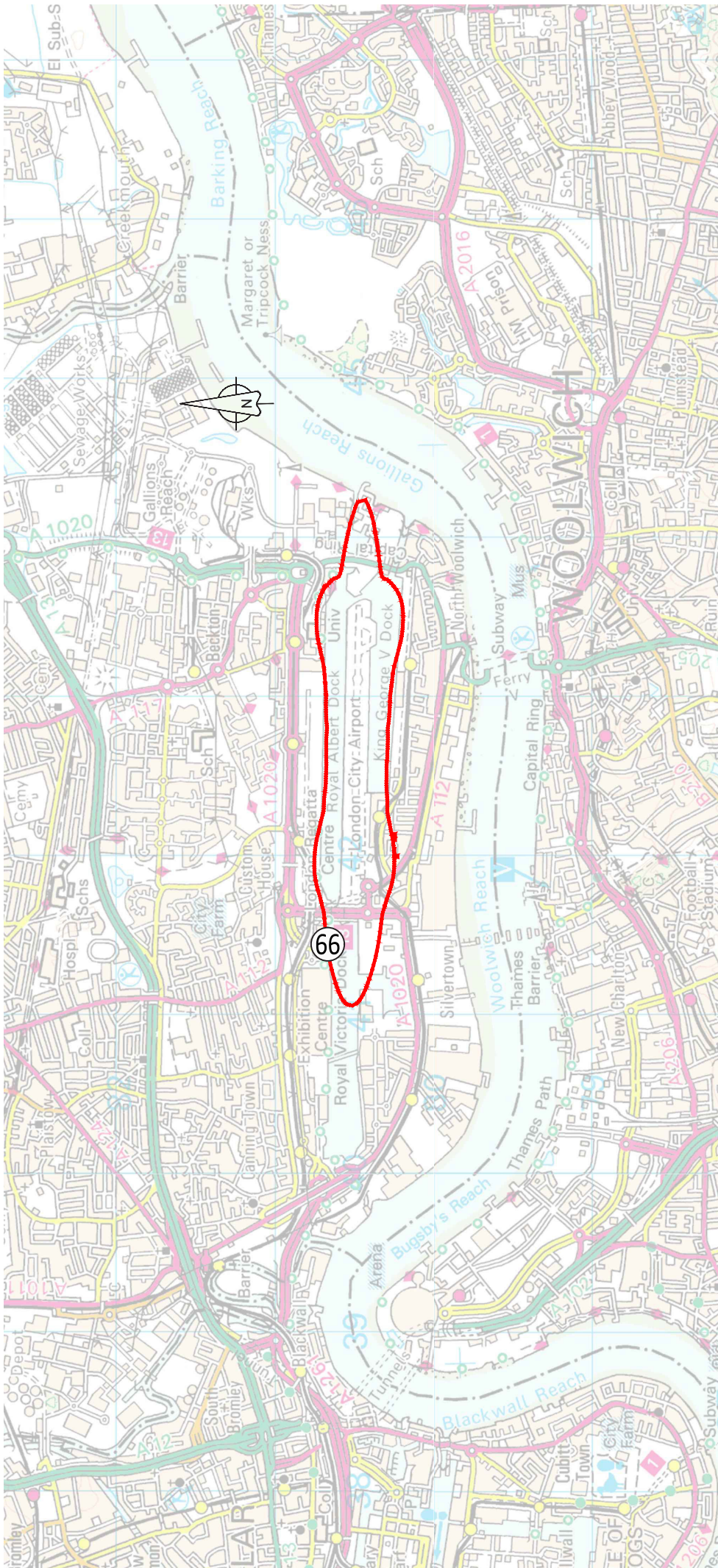
DATE: 20/05/2020

SCALE: 1:35000@A4

FIGURE No:

**A11327\_11\_DR004\_1.0**





Ordnance Survey map licensed to London City Airport Ltd  
100018300

**LEGEND:**

— Noise Contours

**REVISIONS**

**Bickerdike  
Allen  
Partners**  
Architecture  
Acoustics  
Technology

121 Salusbury Road, London, NW6 6RG  
Email: [mail@bickerdikeallen.com](mailto:mail@bickerdikeallen.com)  
[www.bickerdikeallen.com](http://www.bickerdikeallen.com)

T: 0207 625 4411  
F: 0207 625 0250

**London City Airport**

**Residential Second Tier Works and  
Public Buildings Second Tier Works  
Eligibility Boundary**

DRAWN: DR

CHECKED: NW

DATE: 20/05/2020

SCALE: 1:35000@A4

FIGURE No:

**A11327\_11\_DR005\_1.0**

## APPENDIX 8

### AUXILIARY POWER UNIT USAGE

## SCHEDULED AIRCRAFT

AIRCRAFT	A.P.U. USAGE REQUIRED? (✓)
BAe 146	✓
RJ Series	✓
Airbus A318	✓
Bombardier CS100	✓
Embraer 135	✓
Embraer 170	✓
Embraer 190	✓
ATR 42	✓
ATR 72	✓
DHC 8-100	✓
DHC 8-300	✓
DHC 8-400	✓
Fokker 50	
Dornier 328	✓
Dornier 328 Jet	✓
Saab 2000	✓

**Table A8.1: APU Usage Details, Scheduled Aircraft**

## GENERAL AVIATION AIRCRAFT

AIRCRAFT	A.P.U. USAGE REQUIRED? (✓)
B300 Beechcraft	
BE20 Beechcraft 200	
BE58 PA Beechcraft Baron	
BE9L Beechcraft 900	
Beech 400 A	
Bombardier Challenger 350	✓
Bombardier Challenger 604/5	✓

AIRCRAFT	A.P.U. USAGE REQUIRED? (✓)
Bombardier Global 5000/6000	✓
C510 (Citation Mustang)	
C525 Citation Jet Series (CJ1/2/3/4)	
C550 (Citation Bravo)	
C560 (Citation V)	
C56X (Citation Excel)	✓
C680 (Citation Sovereign)	✓
C680A (Citation Latitude)	✓
E545 Legacy 450	✓
E550 Legacy 500	✓
E55P Phenom 300	
FA900B	✓
FA10 (Falcon 10)	
FA50 (Falcon 50)	✓
F2TH (Falcon 2000EX)	✓
F900EX (Falcon 900EX)	✓
FA7X Falcon 7X	✓
FA8X Falcon 8X	✓
G150 Gulfstream 150	✓
G280 Gulfstream 280	✓
G650 Gulfstream GVI	✓
Hawker 800 XP	✓
Learjet 40/45	✓
P180 (Piaggio Avanti)	
P68C (Partenavia 68)	
PA31 (Navajo)	
PA34 (Seneca)	
Pilatus PC24	✓

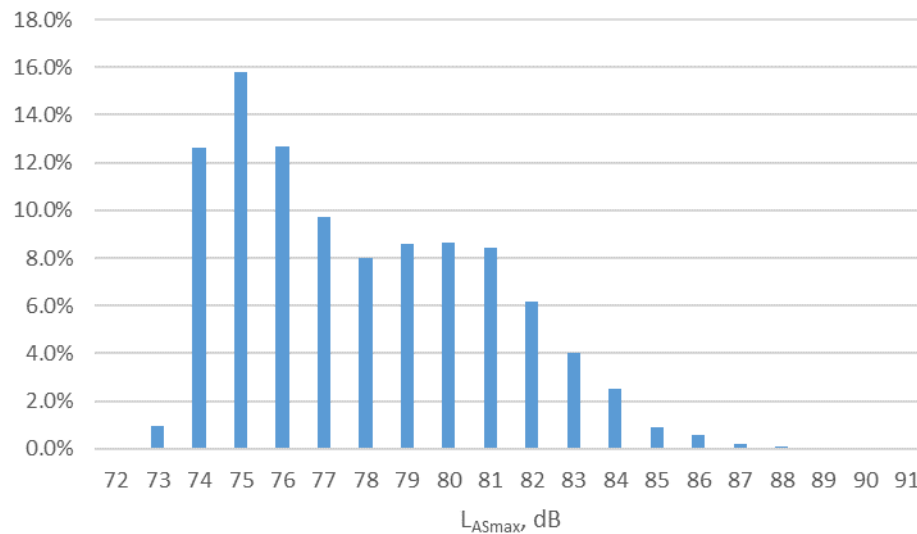
**Table A8.2: APU Usage Details, General Aviation Aircraft**

## APPENDIX 9

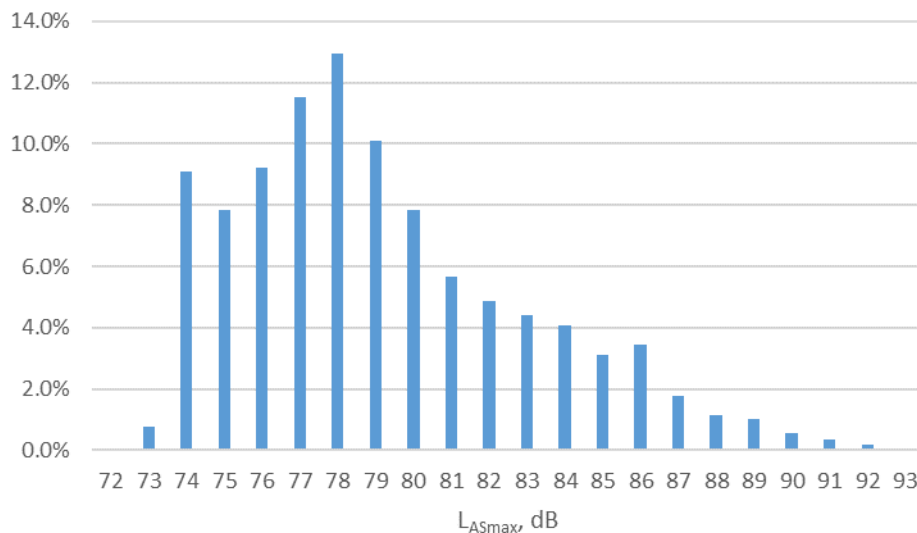
### SUMMARY OF REVERSE THRUST DATA



The following charts show the distribution of measured levels of arriving aircraft at NMT7 in 2019, separately for runway 09 and runway 27. The decibel values on the x-axis in each chart are the maximum values for events in that column, e.g. the column above “83” contains events that recorded a measurement of 82.1 to 83.0 dB  $L_{ASmax}$ .



**Figure A9.1: Runway 09 Distribution of NMT 7 Noise Levels, 2019 (4936 events)**



**Figure A9.2: Runway 27 Distribution of NMT 7 Noise Levels, 2019 (4478 events)**

## APPENDIX 10

### SOUND INSULATION SCHEME PROPERTY LISTS

The tables in this appendix give the lists of properties that have become newly eligible for the following sound insulation schemes:

- First Tier Scheme – Residential Dwellings
- First Tier Scheme – Public Buildings
- Intermediate Tier Scheme – Residential Dwellings
- Intermediate Tier Scheme – Public Buildings
- Second Tier Scheme – Residential Dwellings
- Second Tier Scheme – Public Buildings
- Re-inspection Scheme

First Tier Scheme – Residential Dwellings						
Building Name	No.	Sub Building Name	Thorough-fare	Post Code	uprn	Further Info
n/a						

**Table A10.1: Newly Eligible Residential Dwellings, First Tier Scheme**

First Tier Scheme – Public Buildings						
Building Name	No.	Sub Building Name	Thorough-fare	Post Code	uprn	Further Info
n/a						

**Table A10.2: Newly Eligible Public Buildings, First Tier Scheme**

Intermediate Tier Scheme – Residential Dwellings						
Building Name	No.	Sub Building Name	Thorough-fare	Post Code	uprn	Further Info
n/a						

**Table A10.3: Newly Eligible Residential Dwellings, Intermediate Tier Scheme**

Intermediate Tier Scheme – Public Buildings						
Building Name	No.	Sub Building Name	Thorough-fare	Post Code	uprn	Further Info
n/a						

**Table A10.4: Newly Eligible Public Buildings, Intermediate Tier Scheme**

Second Tier Scheme – Residential Dwellings						
Building Name	No.	Sub Building Name	Thorough-fare	Post Code	uprn	Further Info
n/a						

**Table A10.5: Newly Eligible Residential Dwellings, Second Tier Scheme**

Second Tier Scheme – Public Buildings						
Building Name	No.	Sub Building Name	Thorough-fare	Post Code	uprn	Further Info
n/a						

**Table A10.6: Newly Eligible Public Buildings, Second Tier Scheme**

Re-inspection Scheme – Residential Dwellings						
Building Name	No.	Sub Building Name	Thorough-fare	Post Code	uprn	Further Info
	7		TARLING ROAD	E16 1HN	46073092	
	18		BRAY DRIVE	E16 1LD	46007755	
	20		BRAY DRIVE	E16 1LD	46007757	
	15		MONK DRIVE	E16 1LE	46051455	
	26		MURRAY SQUARE	E16 3AL	46052492	
	8		YEOMAN CLOSE	E6 6NN	10008991556	
	17		COLLIER CLOSE	E6 6FZ	46090855	
WIMBORNE HOUSE	120	FLAT 1	VICTORIA DOCK ROAD	E16 1HL	46085589	
WIMBORNE HOUSE	120	FLAT 2	VICTORIA DOCK ROAD	E16 1HL	46085651	
WIMBORNE HOUSE	120	FLAT 3	VICTORIA DOCK ROAD	E16 1HL	46085587	
WIMBORNE HOUSE	120	FLAT 4	VICTORIA DOCK ROAD	E16 1HL	46085646	
WIMBORNE HOUSE	120	FLAT 5	VICTORIA DOCK ROAD	E16 1HL	46085591	
WIMBORNE HOUSE	120	FLAT 6	VICTORIA DOCK ROAD	E16 1HL	46085635	
WIMBORNE HOUSE	120	FLAT 7	VICTORIA DOCK ROAD	E16 1HL	46085639	
WIMBORNE HOUSE	120	FLAT 8	VICTORIA DOCK ROAD	E16 1HL	46085643	
WIMBORNE HOUSE	120	FLAT 9	VICTORIA DOCK ROAD	E16 1HL	46085647	
WIMBORNE HOUSE	120	FLAT 10	VICTORIA DOCK ROAD	E16 1HL	46085645	
WIMBORNE HOUSE	120	FLAT 11	VICTORIA DOCK ROAD	E16 1HL	46085644	
WIMBORNE HOUSE	120	FLAT 12	VICTORIA DOCK ROAD	E16 1HL	46085634	
WIMBORNE HOUSE	120	FLAT 14	VICTORIA DOCK ROAD	E16 1HL	46085638	
WIMBORNE HOUSE	120	FLAT 15	VICTORIA DOCK ROAD	E16 1HL	46085637	
WIMBORNE HOUSE	120	FLAT 16	VICTORIA DOCK ROAD	E16 1HL	46085636	
WIMBORNE HOUSE	120	FLAT 17	VICTORIA DOCK ROAD	E16 1HL	46085649	
WIMBORNE HOUSE	120	FLAT 18	VICTORIA DOCK ROAD	E16 1HL	46085650	
WIMBORNE HOUSE	120	FLAT 19	VICTORIA DOCK ROAD	E16 1HL	46085652	

Re-inspection Scheme – Residential Dwellings						
Building Name	No.	Sub Building Name	Thorough-fare	Post Code	uprn	Further Info
WIMBORNE HOUSE	120	FLAT 20	VICTORIA DOCK ROAD	E16 1HL	46085590	
WIMBORNE HOUSE	120	FLAT 21	VICTORIA DOCK ROAD	E16 1HL	46085588	
WIMBORNE HOUSE	120	FLAT 22	VICTORIA DOCK ROAD	E16 1HL	46085648	
WIMBORNE HOUSE	120	FLAT 23	VICTORIA DOCK ROAD	E16 1HL	46085640	
WIMBORNE HOUSE	120	FLAT 24	VICTORIA DOCK ROAD	E16 1HL	46085653	
WIMBORNE HOUSE	120	FLAT 25	VICTORIA DOCK ROAD	E16 1HL	46085642	
WIMBORNE HOUSE	120	FLAT 26	VICTORIA DOCK ROAD	E16 1HL	46085641	
WIMBORNE HOUSE	120	FLAT 27	VICTORIA DOCK ROAD	E16 1HL	46085633	
WIMBORNE HOUSE	120	Guest	VICTORIA DOCK ROAD	E16 1HL	-	
WIMBORNE HOUSE	120	Day room 1	VICTORIA DOCK ROAD	E16 1HL	-	
WIMBORNE HOUSE	120	Day room 2	VICTORIA DOCK ROAD	E16 1HL	-	
WIMBORNE HOUSE	120	GF lounge	VICTORIA DOCK ROAD	E16 1HL	-	
	18		CAMPION CLOSE	2020 APR	46010728	
	46A		SAVILLE ROAD	2020 APR	46084981	

**Table A10.7: Residential Dwelling Eligible for Re-Inspection**

## APPENDIX 11

### EXTRACT FROM PLANNING CONDITIONS

## LBN/107(b)

### 17. Aircraft Take-Off and Land Times

Except in cases of immediate emergency to an aircraft and/or the persons on board, the Airport shall not be used for the taking off or landing of aircraft at any time other than between:

#### Weekdays

0630 and 2200 hours Monday to Friday; and

Bank Holidays and Public Holidays (with the exception of Christmas Day – see condition 27)

0900 and 2200 hours on Bank Holidays and Public Holidays; and

#### Saturdays

0630 and 1230 hours on Saturdays; and

#### Sundays

1230 hours and 2200 hours on Sundays.

Provided that these restrictions shall not prevent an aircraft which was scheduled to take off from or land at the Airport but which has suffered unavoidable operational delays, from taking off or landing at the Airport between 2200 and 2230 Sunday to Friday and 1230 to 1300 on Saturday and where that taking off or landing would not result in there being more than 400 Aircraft Movements at the Airport per calendar year outside the above permitted hours of operation comprising no more than 150 such movements in any consecutive three months.

Reason: In the interests of limiting the number of aircraft movements in order to protect the amenity of current and future occupants and neighbours and with regard to saved Policy EQ47 of the London Borough of Newham Unitary Development Plan (adopted June 2001 and saved from 27 September 2007 by direction from the Secretary of State and not deleted on adoption of the Core Strategy on 26 January 2012), Policy 7.15 of the London Plan (consolidated with alterations since 2011 and published March 2015), and Policies SP2 and SP3 of the Newham Core Strategy (adopted 26 January 2012).



## **LBN/107(b)**

the London Plan (consolidated with alterations since 2011 and published March 2015), and Policies SP2 and SP3 of the Newham Core Strategy (adopted 26 January 2012).

### 21. Maximum Permitted Noise Factored Aircraft Movements

Until such time as the Aircraft Noise Categorisation Scheme has been approved and implemented in accordance with Condition 18 and the review of the Aircraft Noise Categorisation Scheme after its first year of operations has been submitted to and approved in writing pursuant to Condition 19, the number of Noise Factored Movements shall not exceed:

- in any one week the number of permitted Aircraft Movements for that week by more than 25%; and
- 120,000 Noise Factored Movements per calendar year.

Reason: In the interests of limiting the number of Aircraft Movements in order to protect the amenity of current and future occupants and neighbours and with regard to saved Policy EQ47 of the London Borough of Newham Unitary Development Plan (adopted June 2001 and saved from 27 September 2007 by direction from the Secretary of State and not deleted on adoption of the Core Strategy on 26 January 2012), Policy 7.15 of the London Plan (consolidated with alterations since 2011 and published March 2015), and Policies SP2 and SP3 of the Newham Core Strategy (adopted 26 January 2012).

### 22. Maximum Permitted Actual Aircraft Movements per hour as Timetabled

The scheduled number of Actual Aircraft Movements including business, commercial, charter and private Aircraft Movements shall not exceed 45 in total in any given hour.

Reason: In the interests of limiting the number of aircraft movements in the peak periods in order to protect the amenity of current and future occupants and neighbours and with regard to saved Policy EQ47 of the London Borough of Newham Unitary Development Plan (adopted June 2001 and saved from 27 September 2007 by direction from the Secretary of State and not deleted on adoption of the Core Strategy on 26 January 2012), Policy 7.15 of the London Plan (consolidated with alterations since 2011 and published March 2015), and Policies SP2 and SP3 of the Newham Core Strategy (adopted 26 January 2012).

### 23. Maximum Permitted Actual Aircraft Movements (days/year)

The number of Actual Aircraft Movements at the Airport shall not exceed:

- a) 100 per day on Saturdays; and
- b) 200 per day on Sundays but not exceeding 280 on any consecutive Saturday and Sunday; and
- c) subject to (d) to (j) below 592 per day on weekdays; and
- d) 132 on 1 January; and
- e) 164 on Good Friday; and
- f) 198 on Easter Monday; and
- g) 248 on the May Day Holiday; and
- h) 230 on the late May Bank Holiday; and
- i) 230 on the late August Bank Holiday; and
- j) 100 on 26 December; and
- k) 111,000 per calendar year.

Reason: In the interests of limiting the number of Aircraft Movements in order to protect the amenity of current and future occupants and neighbours and with regard to saved Policy EQ47 of the London Borough of Newham Unitary Development Plan (adopted June 2001 and saved from 27 September 2007 by direction from the Secretary of State and not deleted on adoption of the Core Strategy on 26 January 2012), Policy 7.15 of

## **LBN/107(b)**

the London Plan (consolidated with alterations since 2011 and published March 2015), and Policies SP2 and SP3 of the Newham Core Strategy (adopted 26 January 2012).

### 24. Maximum Permitted Actual Aircraft Movement on Other Bank Holidays

In the event of there being a Bank Holiday or Public Holiday in England which falls upon or is proclaimed or declared upon a date not referred to in sub-paragraph (d) to (j) (inclusive) of Condition 23 above, then the number of Aircraft Movements permissible on that date shall not exceed 330 unless otherwise agreed in writing by the Local Planning Authority but in any event shall not exceed 396.

Reason: In the interests of limiting the number of Aircraft Movements in order to safeguard the quality of life in the local area.

### 25. Maximum Permitted Actual Aircraft Movement limit between 0630 and 0659

#### Mondays to Saturdays

The maximum number of Actual Aircraft Movements between 0630 and 0659 hours on Mondays to Saturdays (excluding Bank Holidays and Public Holidays when the Airport shall be closed for the use or operation of aircraft between these times) shall not exceed 6 on any day.

Reason: In the interests of limiting the number of movements in and to protect the amenity of current and future occupants and neighbours and with regard to saved Policy EQ47 of the London Borough of Newham Unitary Development Plan (adopted June 2001 and saved from 27 September 2007 by direction from the Secretary of State and not deleted on adoption of the Core Strategy on 26 January 2012), Policy 7.15 of the London Plan (consolidated with alterations since 2011 and published March 2015), and Policies SP2 and SP3 of the Newham Core Strategy (adopted 26 January 2012).

### 26. Maximum Permitted Actual Aircraft Movement limit between 0630 and 0645 on

#### Mondays to Saturdays

Notwithstanding the restriction on Actual Aircraft Movements between 0630 and 0659 hours, as set out by Condition 25 above, the total number of Actual Aircraft Movements in the period between 0630 and 0645 on Mondays to Saturdays (excluding Bank Holidays and Public Holidays when the Airport shall be closed for the use or operation of aircraft between these times), shall not exceed 2 on any day.

Reason: In the interests of limiting the number of Aircraft Movements and to protect the amenity of current and future occupants and neighbours and with regard to saved Policy EQ47 of the London Borough of Newham Unitary Development Plan (adopted June 2001 and saved from 27 September 2007 by direction from the Secretary of State and not deleted on adoption of the Core Strategy on 26 January 2012), Policy 7.15 of the London Plan (consolidated with alterations since 2011 and published March 2015), and Policies SP2 and SP3 of the Newham Core Strategy (adopted 26 January 2012).

### 27. Christmas Day Closure

The Airport shall be closed on Christmas Day each year for the use or operation or maintenance of aircraft or for passengers, with no Aircraft Movements and no Ground Running by aircraft engines.

Reason: In the interests of limiting the number of Aircraft Movements to protect the amenity of current and future occupants and neighbours and with regard to saved Policy EQ47 of the London Borough of Newham Unitary Development Plan (adopted June 2001 and saved from 27 September 2007 by direction from the Secretary of State and not deleted on adoption of the Core Strategy on 26 January 2012), Policy 7.15 of the London Plan (consolidated with alterations since 2011 and published March 2015), and Policies SP2 and SP3 of the Newham Core Strategy (adopted 26 January 2012).

## APPENDIX 12

### NUMBER OF AIRCRAFT OPERATING AT LCA

Date	Actual Aircraft Movements		Permitted Actual Aircraft Movements		Factored Aircraft Movements <sup>[1]</sup>		Permitted Factored Move-ments	Differences (Permitted - Actual)			Early Actual Movements		(Early Permitted - Actual)		Late Actual Movements <sup>[2]</sup>	
								Actual Movements		Factored Movements	Early Morning		Early Morning		Late Eve / Sat Afternoon	3 Month Running Total
	Day	Week-end	Day	Week-end	Day	Week	Week	Day	Week-end	Week	06:30-06:44	06:30-06:59	06:30-06:44	06:30-06:59	22:00-22:30 / 12:30-13:00	
31/12/2018	148	-	592	-	168	1,221	3,475	444	-	2,254	0	4	2	2	0	59
01/01/2019	115	-	132	-	132			17	-		0	0	2	6	0	-
02/01/2019	204	-	592	-	228			388	-		1	4	1	2	0	-
03/01/2019	203	-	592	-	229			389	-		2	5	0	1	1	-
04/01/2019	215	-	592	-	242			377	-		0	2	2	4	0	-
05/01/2019	60	197	100	280	68			40	83		1	3	1	3	1	-
06/01/2019	137		200		154			63			-	-	-	0	-	
07/01/2019	252	-	592	-	287	1,635	4,050	340	-	2,415	1	5	1	1	0	-
08/01/2019	242	-	592	-	273			350	-		1	4	1	2	1	-
09/01/2019	253	-	592	-	287			339	-		1	5	1	1	0	-
10/01/2019	248	-	592	-	284			344	-		1	5	1	1	0	-
11/01/2019	243	-	592	-	275			349	-		0	3	2	3	1	-
12/01/2019	69	204	100	280	78			31	76		2	5	0	1	1	-
13/01/2019	135		200		150			65			-	-	-	0	-	
14/01/2019	257	-	592	-	290	1,713	4,050	335	-	2,337	1	6	1	0	0	-
15/01/2019	250	-	592	-	283			342	-		2	6	0	0	0	-
16/01/2019	261	-	592	-	297			331	-		2	3	0	3	0	-
17/01/2019	259	-	592	-	294			333	-		1	5	1	1	1	-
18/01/2019	265	-	592	-	301			327	-		1	3	1	3	0	-
19/01/2019	72	219	100	280	82			28	61		1	6	1	0	0	-
20/01/2019	147		200		166			53			-	-	-	0	-	
21/01/2019	270	-	592	-	307	1,727	4,050	322	-	2,323	1	4	1	2	0	-
22/01/2019	255	-	592	-	290			337	-		0	3	2	3	1	-
23/01/2019	261	-	592	-	296			331	-		1	4	1	2	0	-
24/01/2019	270	-	592	-	309			322	-		2	4	0	2	0	-
25/01/2019	253	-	592	-	289			339	-		0	3	2	3	2	-

Date	Actual Aircraft Movements		Permitted Actual Aircraft Movements		Factored Aircraft Movements <sup>[1]</sup>		Permitted Factored Move-ments	Differences (Permitted - Actual)			Early Actual Movements		(Early Permitted - Actual)		Late Actual Movements <sup>[2]</sup>	
								Actual Movements		Factored Movements	Early Morning		Early Morning		Late Eve / Sat Afternoon	3 Month Running Total
	Day	Week-end	Day	Week-end	Day	Week	Week	Day	Week-end	Week	06:30-06:44	06:30-06:59	06:30-06:44	06:30-06:59	22:00-22:30 / 12:30-13:00	
26/01/2019	67	210	100	280	76			33	70		1	5	1	1	1	-
27/01/2019	143		200		161			57			-	-	-	0	-	
28/01/2019	283	-	592	-	324	1,857	4,050	309	-	2,193	1	5	1	1	0	-
29/01/2019	278	-	592	-	318			314	-		1	4	1	2	0	-
30/01/2019	299	-	592	-	344			293	-		0	3	2	3	0	-
31/01/2019	284	-	592	-	326			308	-		0	1	2	5	1	51
01/02/2019	259	-	592	-	297			333	-		1	2	1	4	0	-
02/02/2019	67	218	100	280	77			33	62		1	4	1	2	1	-
03/02/2019	151		200		170			49			-	-	-	0	-	
04/02/2019	288	-	592	-	330	1,875	4,050	304	-	2,175	2	5	0	1	1	-
05/02/2019	298	-	592	-	343			294	-		2	4	0	2	1	-
06/02/2019	297	-	592	-	341			295	-		2	4	0	2	0	-
07/02/2019	299	-	592	-	344			293	-		1	3	1	3	0	-
08/02/2019	245	-	592	-	280			347	-		1	4	1	2	2	-
09/02/2019	67	210	100	280	77			33	70		1	5	1	1	3	-
10/02/2019	143		200		160			57			-	-	-	0	-	
11/02/2019	277	-	592	-	318	1,871	4,050	315	-	2,179	2	4	0	2	0	-
12/02/2019	277	-	592	-	318			315	-		1	4	1	2	0	-
13/02/2019	289	-	592	-	330			303	-		0	4	2	2	0	-
14/02/2019	286	-	592	-	329			306	-		2	6	0	0	0	-
15/02/2019	270	-	592	-	310			322	-		1	4	1	2	0	-
16/02/2019	78	235	100	280	89			22	45		2	4	0	2	5	-
17/02/2019	157		200		178			43			-	-	-	1	-	
18/02/2019	291	-	592	-	334	1,798	4,050	301	-	2,252	1	3	1	3	0	-
19/02/2019	300	-	592	-	345			292	-		2	4	0	2	0	-
20/02/2019	296	-	592	-	341			296	-		2	4	0	2	0	-

Date	Actual Aircraft Movements		Permitted Actual Aircraft Movements		Factored Aircraft Movements <sup>[1]</sup>		Permitted Factored Move-ments	Differences (Permitted - Actual)			Early Actual Movements		(Early Permitted - Actual)		Late Actual Movements <sup>[2]</sup>	
								Actual Movements		Factored Movements	Early Morning		Early Morning		Late Eve / Sat Afternoon	3 Month Running Total
	Day	Week-end	Day	Week-end	Day	Week	Week	Day	Week-end	Week	06:30-06:44	06:30-06:59	06:30-06:44	06:30-06:59	22:00-22:30 / 12:30-13:00	
21/02/2019	304	-	592	-	350			288	-		0	4	2	2	0	-
22/02/2019	197	-	592	-	224			395	-		0	2	2	4	0	-
23/02/2019	16	178	100	280	20			84	102		0	0	2	6	3	-
24/02/2019	162		200		184			38			-	-	-	-	0	-
25/02/2019	296	-	592	-	340	1,922	4,050	296	-	2,129	1	5	1	1	0	-
26/02/2019	309	-	592	-	356			283	-		1	4	1	2	0	-
27/02/2019	296	-	592	-	340			296	-		2	5	0	1	0	-
28/02/2019	286	-	592	-	328			306	-		1	6	1	0	1	50
01/03/2019	286	-	592	-	327			306	-		1	3	1	3	0	-
02/03/2019	78	205	100	280	89			22	75		2	5	0	1	0	-
03/03/2019	127		200		141			73			-	-	-	-	0	-
04/03/2019	288	-	592	-	331	1,922	4,050	304	-	2,128	1	3	1	3	2	-
05/03/2019	294	-	592	-	339			298	-		1	3	1	3	0	-
06/03/2019	295	-	592	-	343			297	-		1	4	1	2	0	-
07/03/2019	295	-	592	-	340			297	-		1	5	1	1	1	-
08/03/2019	286	-	592	-	327			306	-		1	5	1	1	0	-
09/03/2019	76	216	100	280	86			24	64		1	3	1	3	7	-
10/03/2019	140		200		156			60			-	-	-	-	1	-
11/03/2019	282	-	592	-	324	1,932	4,050	310	-	2,118	1	2	1	4	2	-
12/03/2019	260	-	592	-	300			332	-		1	5	1	1	1	-
13/03/2019	297	-	592	-	341			295	-		2	5	0	1	2	-
14/03/2019	308	-	592	-	355			284	-		1	3	1	3	0	-
15/03/2019	300	-	592	-	345			292	-		1	2	1	4	2	-
16/03/2019	81	234	100	280	93			19	46		1	3	1	3	6	-
17/03/2019	153		200		174			47			-	-	-	-	0	-
18/03/2019	302	-	592	-	348	2,003	4,050	290	-	2,047	2	6	0	0	1	-



Date	Actual Aircraft Movements		Permitted Actual Aircraft Movements		Factored Aircraft Movements <sup>[1]</sup>		Permitted Factored Move-ments	Differences (Permitted - Actual)			Early Actual Movements		(Early Permitted - Actual)		Late Actual Movements <sup>[2]</sup>	
								Actual Movements		Factored Movements	Early Morning		Early Morning		Late Eve / Sat Afternoon	3 Month Running Total
	Day	Week-end	Day	Week-end	Day	Week	Week	Day	Week-end	Week	06:30-06:44	06:30-06:59	06:30-06:44	06:30-06:59	22:00-22:30 / 12:30-13:00	
19/03/2019	304	-	592	-	350			288	-		1	6	1	0	1	-
20/03/2019	314	-	592	-	363			278	-		2	6	0	0	0	-
21/03/2019	289	-	592	-	333			303	-		2	6	0	0	1	-
22/03/2019	294	-	592	-	338			298	-		1	5	1	1	0	-
23/03/2019	80	240	100	280	91			20	40		1	6	1	0	1	-
24/03/2019	160		200		181			40			-	-	-	0	-	
25/03/2019	293	-	592	-	336	1,983	4,050	299	-	2,067	1	4	1	2	0	-
26/03/2019	302	-	592	-	347			290	-		1	4	1	2	0	-
27/03/2019	309	-	592	-	357			283	-		1	5	1	1	0	-
28/03/2019	312	-	592	-	360			280	-		2	6	0	0	0	-
29/03/2019	291	-	592	-	334			301	-		2	5	0	1	0	-
30/03/2019	78	221	100	280	88			22	59		1	6	1	0	1	-
31/03/2019	143		200		161			57			-	-	-	0	58	
01/04/2019	296	-	592	-	339	1,969	4,050	296	-	2,081	1	4	1	2	2	-
02/04/2019	302	-	592	-	347			290	-		2	5	0	1	0	-
03/04/2019	301	-	592	-	345			291	-		1	5	1	1	0	-
04/04/2019	296	-	592	-	340			296	-		1	4	1	2	3	-
05/04/2019	285	-	592	-	329			307	-		1	6	1	0	0	-
06/04/2019	84	237	100	280	96			16	43		1	5	1	1	3	-
07/04/2019	153		200		174			47			-	-	-	0	-	
08/04/2019	296	-	592	-	345	1,985	4,050	296	-	2,066	1	4	1	2	0	-
09/04/2019	297	-	592	-	343			295	-		0	3	2	3	2	-
10/04/2019	308	-	592	-	358			284	-		1	5	1	1	0	-
11/04/2019	312	-	592	-	362			280	-		1	5	1	1	1	-
12/04/2019	282	-	592	-	324			310	-		1	3	1	3	1	-
13/04/2019	79	226	100	280	87			21	54		0	2	2	4	5	-

Date	Actual Aircraft Movements		Permitted Actual Aircraft Movements		Factored Aircraft Movements <sup>[1]</sup>		Permitted Factored Move-ments	Differences (Permitted - Actual)			Early Actual Movements		(Early Permitted - Actual)		Late Actual Movements <sup>[2]</sup>	
								Actual Movements		Factored Movements	Early Morning		Early Morning		Late Eve / Sat Afternoon	3 Month Running Total
	Day	Week-end	Day	Week-end	Day	Week	Week	Day	Week-end	Week	06:30-06:44	06:30-06:59	06:30-06:44	06:30-06:59	22:00-22:30 / 12:30-13:00	
14/04/2019	147		200		166			53			-	-	-	-	0	-
15/04/2019	283	-	592	-	325	1,686	3,515	309	-	1,829	0	3	2	3	2	-
16/04/2019	281	-	592	-	323			311	-		2	4	0	2	0	-
17/04/2019	288	-	592	-	333			304	-		2	6	0	0	0	-
18/04/2019	273	-	592	-	315			319	-		0	1	2	5	0	-
19/04/2019	162	-	164	-	180			2	-		0	0	2	6	0	-
20/04/2019	71	189	100	280	79			29	91		1	4	1	2	3	-
21/04/2019	118		200		131			82			-	-	-	-	0	-
22/04/2019	166	-	198	-	186	1,768	3,558	32	-	1,790	0	0	2	6	0	-
23/04/2019	288	-	592	-	331			304	-		2	6	0	0	1	-
24/04/2019	295	-	592	-	341			297	-		2	6	0	0	2	-
25/04/2019	289	-	592	-	333			303	-		2	6	0	0	1	-
26/04/2019	284	-	592	-	328			308	-		1	6	1	0	1	-
27/04/2019	73	219	100	280	83			27	61		1	3	1	3	1	-
28/04/2019	146		200		165			54			-	-	-	-	0	-
29/04/2019	311	-	592	-	359	2,024	4,050	281	-	2,026	1	6	1	0	1	-
30/04/2019	312	-	592	-	362			280	-		1	6	1	0	0	76
01/05/2019	309	-	592	-	360			283	-		1	5	1	1	0	-
02/05/2019	307	-	592	-	357			285	-		1	5	1	1	0	-
03/05/2019	296	-	592	-	341			296	-		1	6	1	0	0	-
04/05/2019	80	216	100	280	91			20	64		2	3	0	3	5	-
05/05/2019	136		200		154			64			-	-	-	-	0	-
06/05/2019	176	-	248	-	199	1,860	3,620	72	-	1,760	0	0	2	6	1	-
07/05/2019	305	-	592	-	353			287	-		1	5	1	1	0	-
08/05/2019	307	-	592	-	357			285	-		1	5	1	1	1	-
09/05/2019	299	-	592	-	347			293	-		1	4	1	2	1	-



Date	Actual Aircraft Movements		Permitted Actual Aircraft Movements		Factored Aircraft Movements <sup>[1]</sup>		Permitted Factored Move-ments	Differences (Permitted - Actual)			Early Actual Movements		(Early Permitted - Actual)		Late Actual Movements <sup>[2]</sup>	
								Actual Movements		Factored Movements	Early Morning		Early Morning		Late Eve / Sat Afternoon	3 Month Running Total
	Day	Week-end	Day	Week-end	Day	Week	Week	Day	Week-end	Week	06:30-06:44	06:30-06:59	06:30-06:44	06:30-06:59	22:00-22:30 / 12:30-13:00	
10/05/2019	301	-	592	-	348			291	-		1	4	1	2	1	-
11/05/2019	72	225	100	280	83			28	55		1	4	1	2	3	-
12/05/2019	153		200		174			47			-	-	-	-	0	-
13/05/2019	301	-	592	-	348	2,036	4,050	291	-	2,014	2	4	0	2	2	-
14/05/2019	305	-	592	-	353			287	-		1	6	1	0	0	-
15/05/2019	317	-	592	-	368			275	-		2	5	0	1	1	-
16/05/2019	315	-	592	-	365			277	-		2	5	0	1	1	-
17/05/2019	287	-	592	-	330			305	-		1	6	1	0	0	-
18/05/2019	80	238	100	280	91			20	42		2	6	0	0	4	-
19/05/2019	158		200		181			42			-	-	-	-	0	-
20/05/2019	295	-	592	-	339	2,005	4,050	297	-	2,045	1	5	1	1	1	-
21/05/2019	303	-	592	-	350			289	-		2	6	0	0	0	-
22/05/2019	307	-	592	-	355			285	-		1	6	1	0	0	-
23/05/2019	307	-	592	-	357			285	-		2	6	0	0	0	-
24/05/2019	295	-	592	-	339			297	-		1	5	1	1	0	-
25/05/2019	80	232	100	280	92			20	48		2	3	0	3	4	-
26/05/2019	152		200		173			48			-	-	-	-	0	-
27/05/2019	187	-	230	-	213	1,893	3,598	43	-	1,705	0	0	2	6	0	-
28/05/2019	313	-	592	-	363			279	-		1	6	1	0	0	-
29/05/2019	311	-	592	-	361			281	-		1	5	1	1	0	-
30/05/2019	300	-	592	-	346			292	-		2	6	0	0	0	-
31/05/2019	299	-	592	-	345			293	-		2	5	0	1	0	83
01/06/2019	80	234	100	280	89			20	46		1	5	1	1	1	-
02/06/2019	154		200		175			46			-	-	-	-	0	-
03/06/2019	308	-	592	-	358	2,044	4,050	284	-	2,006	1	6	1	0	0	-
04/06/2019	301	-	592	-	348			291	-		1	6	1	0	1	-

Date	Actual Aircraft Movements		Permitted Actual Aircraft Movements		Factored Aircraft Movements <sup>[1]</sup>		Permitted Factored Move-ments	Differences (Permitted - Actual)			Early Actual Movements		(Early Permitted - Actual)		Late Actual Movements <sup>[2]</sup>	
								Actual Movements		Factored Movements	Early Morning		Early Morning		Late Eve / Sat Afternoon	3 Month Running Total
	Day	Week-end	Day	Week-end	Day	Week	Week	Day	Week-end	Week	06:30-06:44	06:30-06:59	06:30-06:44	06:30-06:59	22:00-22:30 / 12:30-13:00	
05/06/2019	307	-	592	-	355			285	-		2	6	0	0	2	-
06/06/2019	323	-	592	-	375			269	-		2	6	0	0	0	-
07/06/2019	291	-	592	-	335			301	-		2	6	0	0	1	-
08/06/2019	83	241	100	280	93			17	39		2	5	0	1	4	-
09/06/2019	158		200		180			42			-	-	-	-	0	-
10/06/2019	299	-	592	-	344			2,054	4,050		293	-	1,996	2	6	0
11/06/2019	303	-	592	-	350	289	-			2	6	0		0	1	-
12/06/2019	308	-	592	-	357	284	-			2	5	0		1	0	-
13/06/2019	315	-	592	-	365	277	-			1	5	1		1	0	-
14/06/2019	314	-	592	-	365	278	-			1	5	1		1	0	-
15/06/2019	78	239	100	280	88	22	41			2	6	0		0	2	-
16/06/2019	161		200		184	39				-	-	-		-	0	-
17/06/2019	309	-	592	-	357	2,002	4,050			283	-	2,048		1	4	1
18/06/2019	308	-	592	-	358			284	-	2	6		0	0	0	-
19/06/2019	296	-	592	-	342			296	-	2	5		0	1	2	-
20/06/2019	306	-	592	-	354			286	-	2	5		0	1	0	-
21/06/2019	292	-	592	-	338			300	-	0	5		2	1	3	-
22/06/2019	71	223	100	280	79			29	57	2	5		0	1	3	-
23/06/2019	152		200		174			48		-	-		-	-	2	-
24/06/2019	302	-	592	-	349			1,988	4,050	290	-		2,062	2	4	0
25/06/2019	290	-	592	-	334	302	-			1	5	1		1	0	-
26/06/2019	305	-	592	-	350	287	-			2	4	0		2	0	-
27/06/2019	297	-	592	-	343	295	-			2	5	0		1	0	-
28/06/2019	293	-	592	-	337	299	-			2	5	0		1	0	-
29/06/2019	81	241	100	280	91	19	39			2	5	0		1	3	-
30/06/2019	160		200		184	40				-	-	-		-	1	81

Date	Actual Aircraft Movements		Permitted Actual Aircraft Movements		Factored Aircraft Movements <sup>[1]</sup>		Permitted Factored Move-ments	Differences (Permitted - Actual)			Early Actual Movements		(Early Permitted - Actual)		Late Actual Movements <sup>[2]</sup>	
								Actual Movements		Factored Movements	Early Morning		Early Morning		Late Eve / Sat Afternoon	3 Month Running Total
	Day	Week-end	Day	Week-end	Day	Week	Week	Day	Week-end	Week	06:30-06:44	06:30-06:59	06:30-06:44	06:30-06:59	22:00-22:30 / 12:30-13:00	
01/07/2019	286	-	592	-	329	1,893	4,050	306	-	2,157	1	4	1	2	0	-
02/07/2019	283	-	592	-	328			309	-		0	4	2	2	0	-
03/07/2019	275	-	592	-	316			317	-		0	4	2	2	1	-
04/07/2019	288	-	592	-	334			304	-		1	6	1	0	0	-
05/07/2019	281	-	592	-	324			311	-		0	3	2	3	1	-
06/07/2019	76	231	100	280	86			24	49		2	5	0	1	4	-
07/07/2019	155		200		176			45			-	-	-	-	0	-
08/07/2019	282	-	592	-	327	1,909	4,050	310	-	2,141	2	3	0	3	1	-
09/07/2019	282	-	592	-	326			310	-		2	6	0	0	0	-
10/07/2019	286	-	592	-	333			306	-		2	6	0	0	0	-
11/07/2019	301	-	592	-	352			291	-		1	5	1	1	0	-
12/07/2019	263	-	592	-	301			329	-		1	5	1	1	1	-
13/07/2019	79	238	100	280	89			21	42		1	6	1	0	6	-
14/07/2019	159		200		181			41			-	-	-	-	1	-
15/07/2019	281	-	592	-	325	1,841	4,050	311	-	2,209	1	3	1	3	0	-
16/07/2019	274	-	592	-	315			318	-		2	5	0	1	0	-
17/07/2019	278	-	592	-	321			314	-		2	5	0	1	0	-
18/07/2019	278	-	592	-	321			314	-		1	4	1	2	0	-
19/07/2019	268	-	592	-	309			324	-		1	5	1	1	1	-
20/07/2019	71	220	100	280	81			29	60		1	5	1	1	3	-
21/07/2019	149		200		169			51			-	-	-	-	0	-
22/07/2019	271	-	592	-	314	1,761	4,050	321	-	2,289	2	5	0	1	0	-
23/07/2019	284	-	592	-	328			308	-		0	5	2	1	0	-
24/07/2019	267	-	592	-	307			325	-		2	6	0	0	1	-
25/07/2019	248	-	592	-	285			344	-		1	5	1	1	2	-
26/07/2019	247	-	592	-	283			345	-		2	4	0	2	2	-

Date	Actual Aircraft Movements		Permitted Actual Aircraft Movements		Factored Aircraft Movements <sup>[1]</sup>		Permitted Factored Move-ments	Differences (Permitted - Actual)			Early Actual Movements		(Early Permitted - Actual)		Late Actual Movements <sup>[2]</sup>	
								Actual Movements		Factored Movements	Early Morning		Early Morning		Late Eve / Sat Afternoon	3 Month Running Total
	Day	Week-end	Day	Week-end	Day	Week	Week	Day	Week-end	Week	06:30-06:44	06:30-06:59	06:30-06:44	06:30-06:59	22:00-22:30 / 12:30-13:00	
27/07/2019	71	213	100	280	82			29	67		1	4	1	2	8	-
28/07/2019	142		200		163			58			-	-	-	-	1	-
29/07/2019	264	-	592	-	306	1,783	4,050	328	-	2,267	2	4	0	2	3	-
30/07/2019	270	-	592	-	310			322	-		2	4	0	2	2	-
31/07/2019	263	-	592	-	302			329	-		2	4	0	2	1	91
01/08/2019	275	-	592	-	316			317	-		1	5	1	1	0	-
02/08/2019	258	-	592	-	299			334	-		1	4	1	2	2	-
03/08/2019	67	218	100	280	76			33	62		1	6	1	0	2	-
04/08/2019	151		200		174			49			-	-	-	0	-	
05/08/2019	252	-	592	-	289	1,672	4,050	340	-	2,378	2	4	0	2	0	-
06/08/2019	254	-	592	-	292			338	-		1	4	1	2	0	-
07/08/2019	249	-	592	-	287			343	-		0	3	2	3	0	-
08/08/2019	257	-	592	-	296			335	-		1	6	1	0	0	-
09/08/2019	242	-	592	-	280			350	-		0	4	2	2	3	-
10/08/2019	61	201	100	280	68			39	79		0	3	2	3	4	-
11/08/2019	140		200		160			60			-	-	-	0	-	
12/08/2019	245	-	592	-	282	1,701	4,050	347	-	2,349	1	4	1	2	2	-
13/08/2019	260	-	592	-	300			332	-		1	6	1	0	0	-
14/08/2019	250	-	592	-	289			342	-		1	5	1	1	0	-
15/08/2019	259	-	592	-	299			333	-		1	3	1	3	0	-
16/08/2019	249	-	592	-	287			343	-		1	5	1	1	0	-
17/08/2019	65	214	100	280	73			35	66		1	6	1	0	2	-
18/08/2019	149		200		171			51			-	-	-	2	-	
19/08/2019	257	-	592	-	295	1,724	4,050	335	-	2,326	0	3	2	3	3	-
20/08/2019	263	-	592	-	304			329	-		0	5	2	1	0	-
21/08/2019	259	-	592	-	300			333	-		1	5	1	1	1	-

Date	Actual Aircraft Movements		Permitted Actual Aircraft Movements		Factored Aircraft Movements <sup>[1]</sup>		Permitted Factored Move-ments	Differences (Permitted - Actual)			Early Actual Movements		(Early Permitted - Actual)		Late Actual Movements <sup>[2]</sup>	
								Actual Movements		Factored Movements	Early Morning		Early Morning		Late Eve / Sat Afternoon	3 Month Running Total
	Day	Week-end	Day	Week-end	Day	Week	Week	Day	Week-end	Week	06:30-06:44	06:30-06:59	06:30-06:44	06:30-06:59	22:00-22:30 / 12:30-13:00	
22/08/2019	256	-	592	-	294			336	-		2	4	0	2	1	-
23/08/2019	251	-	592	-	290			341	-		2	5	0	1	4	-
24/08/2019	63	212	100	280	71			37	68		0	4	2	2	0	-
25/08/2019	149		200		171			51			-	-	-	1	-	
26/08/2019	175	-	230	-	198	1,719	3,598	55	-	1,879	0	0	2	6	0	-
27/08/2019	267	-	592	-	309			325	-		1	4	1	2	0	-
28/08/2019	270	-	592	-	314			322	-		1	5	1	1	0	-
29/08/2019	281	-	592	-	324			311	-		1	6	1	0	1	-
30/08/2019	267	-	592	-	310			325	-		1	4	1	2	2	-
31/08/2019	76	232	100	280	87			24	48		1	5	1	1	2	98
01/09/2019	156		200		178			44			-	-	-	1	-	
02/09/2019	287	-	592	-	333	1,930	4,050	305	-	2,120	1	5	1	1	1	-
03/09/2019	290	-	592	-	336			302	-		1	4	1	2	0	-
04/09/2019	289	-	592	-	337			303	-		1	6	1	0	0	-
05/09/2019	295	-	592	-	342			297	-		1	5	1	1	0	-
06/09/2019	274	-	592	-	315			318	-		1	6	1	0	0	-
07/09/2019	77	233	100	280	88			23	47		1	5	1	1	5	-
08/09/2019	156		200		178			44			-	-	-	2	-	
09/09/2019	314	-	592	-	361	2,008	4,050	278	-	2,042	0	3	2	3	0	-
10/09/2019	305	-	592	-	353			287	-		0	4	2	2	0	-
11/09/2019	296	-	592	-	341			296	-		2	6	0	0	2	-
12/09/2019	302	-	592	-	349			290	-		2	6	0	0	0	-
13/09/2019	298	-	592	-	341			294	-		1	5	1	1	1	-
14/09/2019	77	231	100	280	88			23	49		1	5	1	1	3	-
15/09/2019	154		200		175			46			-	-	-	1	-	
16/09/2019	312	-	592	-	358	1,990	4,050	280	-	2,060	2	4	0	2	0	-

Date	Actual Aircraft Movements		Permitted Actual Aircraft Movements		Factored Aircraft Movements <sup>[1]</sup>		Permitted Factored Move-ments	Differences (Permitted - Actual)			Early Actual Movements		(Early Permitted - Actual)		Late Actual Movements <sup>[2]</sup>		
								Actual Movements		Factored Movements	Early Morning		Early Morning		Late Eve / Sat Afternoon	3 Month Running Total	
	Day	Week-end	Day	Week-end	Day	Week	Week	Day	Week-end	Week	06:30-06:44	06:30-06:59	06:30-06:44	06:30-06:59	22:00-22:30 / 12:30-13:00		
17/09/2019	303	-	592	-	349			289	-		2	5	0	1	0	-	
18/09/2019	302	-	592	-	348			290	-		2	6	0	0	1	-	
19/09/2019	300	-	592	-	344			292	-		1	6	1	0	0	-	
20/09/2019	294	-	592	-	335			298	-		1	6	1	0	0	-	
21/09/2019	70	225	100	280	79			30	55		1	6	1	0	1	-	
22/09/2019	155		200		176			45			-	-	-	2	-		
23/09/2019	298	-	592	-	341			294	-		2,064	1	4	1	2	0	-
24/09/2019	300	-	592	-	345			292	-			0	3	2	3	2	-
25/09/2019	296	-	592	-	339	296	-	1	6	1		0	0	-			
26/09/2019	299	-	592	-	341	293	-	2	5	0		1	0	-			
27/09/2019	311	-	592	-	357	281	-	1	5	1		1	5	-			
28/09/2019	74	230	100	280	84	26	50	1	5	1		1	3	-			
29/09/2019	156		200		178	44		-	-	-		0	-				
30/09/2019	297	-	592	-	340	1,986	4,050	295	-	2,064		1	5	1	1	1	102
01/10/2019	288	-	592	-	331			304	-		1	6	1	0	4	-	
02/10/2019	304	-	592	-	349			288	-		1	6	1	0	0	-	
03/10/2019	309	-	592	-	354			283	-		0	6	2	0	1	-	
04/10/2019	304	-	592	-	349			288	-		0	3	2	3	0	-	
05/10/2019	78	231	100	280	89			22	49		1	5	1	1	0	-	
06/10/2019	153		200		173			47			-	-	-	1	-		
07/10/2019	301	-	592	-	344			1,929	4,050		291	-	2,121	2	5	0	1
08/10/2019	302	-	592	-	348	290	-			1	5	1		1	0	-	
09/10/2019	298	-	592	-	341	294	-			2	6	0		0	0	-	
10/10/2019	287	-	592	-	326	305	-			2	6	0		0	0	-	
11/10/2019	280	-	592	-	319	312	-			1	6	1		0	0	-	
12/10/2019	74	223	100	280	83	26	57			1	5	1		1	2	-	

Date	Actual Aircraft Movements		Permitted Actual Aircraft Movements		Factored Aircraft Movements <sup>[1]</sup>		Permitted Factored Move-ments	Differences (Permitted - Actual)			Early Actual Movements		(Early Permitted - Actual)		Late Actual Movements <sup>[2]</sup>	
								Actual Movements		Factored Movements	Early Morning		Early Morning		Late Eve / Sat Afternoon	3 Month Running Total
	Day	Week-end	Day	Week-end	Day	Week	Week	Day	Week-end	Week	06:30-06:44	06:30-06:59	06:30-06:44	06:30-06:59	22:00-22:30 / 12:30-13:00	
13/10/2019	149		200		168			51			-	-	-	-	1	-
14/10/2019	289	-	592	-	330	1,944	4,050	303	-	2,106	1	5	1	1	3	-
15/10/2019	296	-	592	-	340			296	-		1	4	1	2	1	-
16/10/2019	294	-	592	-	334			298	-		1	6	1	0	0	-
17/10/2019	307	-	592	-	352			285	-		1	6	1	0	2	-
18/10/2019	294	-	592	-	336			298	-		1	4	1	2	1	-
19/10/2019	75	224	100	280	85			25	56		2	5	0	1	1	-
20/10/2019	149		200		168			51			-	-	-	1	-	
21/10/2019	302	-	592	-	347	1,924	4,050	290	-	2,126	0	4	2	2	1	-
22/10/2019	299	-	592	-	344			293	-		2	6	0	0	0	-
23/10/2019	296	-	592	-	338			296	-		0	2	2	4	0	-
24/10/2019	290	-	592	-	330			302	-		1	4	1	2	0	-
25/10/2019	275	-	592	-	312			317	-		1	6	1	0	0	-
26/10/2019	74	222	100	280	84			26	58		1	5	1	1	3	-
27/10/2019	148		200		169			52			-	-	-	0	-	
28/10/2019	285	-	592	-	329	1,903	4,050	307	-	2,147	2	5	0	1	0	-
29/10/2019	287	-	592	-	331			305	-		1	5	1	1	0	-
30/10/2019	298	-	592	-	345			294	-		1	5	1	1	0	-
31/10/2019	295	-	592	-	341			297	-		1	5	1	1	0	85
01/11/2019	278	-	592	-	321			314	-		0	5	2	1	0	-
02/11/2019	68	207	100	280	77			32	73		1	5	1	1	1	-
03/11/2019	139		200		158			61			-	-	-	1	-	
04/11/2019	281	-	592	-	324	1,819	4,050	311	-	2,231	1	5	1	1	0	-
05/11/2019	255	-	592	-	296			337	-		1	4	1	2	0	-
06/11/2019	286	-	592	-	330			306	-		2	5	0	1	1	-
07/11/2019	287	-	592	-	331			305	-		2	5	0	1	0	-

Date	Actual Aircraft Movements		Permitted Actual Aircraft Movements		Factored Aircraft Movements <sup>[1]</sup>		Permitted Factored Move-ments	Differences (Permitted - Actual)			Early Actual Movements		(Early Permitted - Actual)		Late Actual Movements <sup>[2]</sup>	
								Actual Movements		Factored Movements	Early Morning		Early Morning		Late Eve / Sat Afternoon	3 Month Running Total
	Day	Week-end	Day	Week-end	Day	Week	Week	Day	Week-end	Week	06:30-06:44	06:30-06:59	06:30-06:44	06:30-06:59	22:00-22:30 / 12:30-13:00	
08/11/2019	266	-	592	-	305			326	-		2	4	0	2	1	-
09/11/2019	64	205	100	280	73			36	75		0	2	2	4	0	-
10/11/2019	141		200		160			59			-	-	-	0	-	
11/11/2019	278	-	592	-	322	1,862	4,050	314	-	2,188	1	5	1	1	0	-
12/11/2019	284	-	592	-	327			308	-		1	5	1	1	0	-
13/11/2019	279	-	592	-	321			313	-		2	5	0	1	0	-
14/11/2019	285	-	592	-	329			307	-		2	5	0	1	0	-
15/11/2019	274	-	592	-	315			318	-		2	6	0	0	0	-
16/11/2019	73	218	100	280	83			27	62		2	6	0	0	1	-
17/11/2019	145		200		165			55			-	-	-	0	-	
18/11/2019	289	-	592	-	334	1,856	4,050	303	-	2,194	2	6	0	0	0	-
19/11/2019	271	-	592	-	312			321	-		1	5	1	1	0	-
20/11/2019	284	-	592	-	328			308	-		2	6	0	0	0	-
21/11/2019	284	-	592	-	328			308	-		1	6	1	0	1	-
22/11/2019	280	-	592	-	324			312	-		2	5	0	1	0	-
23/11/2019	71	203	100	280	82			29	77		2	5	0	1	0	-
24/11/2019	132		200		149			68			-	-	-	0	-	
25/11/2019	272	-	592	-	315	1,806	4,050	320	-	2,244	2	6	0	0	1	-
26/11/2019	285	-	592	-	328			307	-		2	6	0	0	0	-
27/11/2019	283	-	592	-	326			309	-		2	6	0	0	0	-
28/11/2019	280	-	592	-	323			312	-		2	6	0	0	0	-
29/11/2019	266	-	592	-	304			326	-		1	4	1	2	0	-
30/11/2019	42	182	100	280	50			58	98		1	1	1	5	2	62
01/12/2019	140		200		160			60			-	-	-	-	0	-
02/12/2019	292	-	592	-	344	1,930	4,050	300	-	2,120	0	4	2	2	0	-
03/12/2019	286	-	592	-	336			306	-		1	5	1	1	0	-



Date	Actual Aircraft Movements		Permitted Actual Aircraft Movements		Factored Aircraft Movements <sup>[1]</sup>		Permitted Factored Move-ments	Differences (Permitted - Actual)			Early Actual Movements		(Early Permitted - Actual)		Late Actual Movements <sup>[2]</sup>	
								Actual Movements		Factored Movements	Early Morning		Early Morning		Late Eve / Sat Afternoon	3 Month Running Total
	Day	Week-end	Day	Week-end	Day	Week	Week	Day	Week-end	Week	06:30-06:44	06:30-06:59	06:30-06:44	06:30-06:59	22:00-22:30 / 12:30-13:00	
04/12/2019	288	-	592	-	339			304	-		1	4	1	2	0	-
05/12/2019	292	-	592	-	344			300	-		2	5	0	1	0	-
06/12/2019	284	-	592	-	335			308	-		2	5	0	1	0	-
07/12/2019	70	204	100	280	79			30	76		2	3	0	3	1	-
08/12/2019	134		200		153			66			-	-	-	-	1	-
09/12/2019	290	-	592	-	340	1,893	4,050	302	-	2,157	1	4	1	2	0	-
10/12/2019	271	-	592	-	318			321	-		1	5	1	1	0	-
11/12/2019	297	-	592	-	348			295	-		1	5	1	1	0	-
12/12/2019	283	-	592	-	334			309	-		2	6	0	0	0	-
13/12/2019	264	-	592	-	309			328	-		2	5	0	1	1	-
14/12/2019	70	214	100	280	80			30	66		2	4	0	2	4	-
15/12/2019	144		200		164			56			-	-	-	0	-	
16/12/2019	272	-	592	-	319	1,762	4,050	320	-	2,288	1	6	1	0	0	-
17/12/2019	231	-	592	-	273			361	-		1	2	1	4	0	-
18/12/2019	266	-	592	-	312			326	-		1	4	1	2	0	-
19/12/2019	269	-	592	-	315			323	-		1	4	1	2	1	-
20/12/2019	256	-	592	-	299			336	-		0	1	2	5	1	-
21/12/2019	73	214	100	280	83			27	66		1	4	1	2	3	-
22/12/2019	141		200		161			59			-	-	-	0	-	
23/12/2019	243	-	592	-	286	1,025	2,695	349	-	1,670	1	5	1	1	0	-
24/12/2019	147	-	592	-	171			445	-		1	4	1	2	0	-
25/12/2019	0	-	0	-	0			0	-		0	0	2	6	0	-
26/12/2019	100	-	100	-	117			0	-		0	0	2	6	0	-
27/12/2019	195	-	592	-	227			397	-		0	3	2	3	0	-
28/12/2019	70	197	100	280	79			30	83		1	3	1	3	3	-
29/12/2019	127		200		144			73			-	-	-	0	-	

Date	Actual Aircraft Movements		Permitted Actual Aircraft Movements		Factored Aircraft Movements <sup>[1]</sup>		Permitted Factored Move-ments	Differences (Permitted - Actual)			Early Actual Movements		(Early Permitted - Actual)		Late Actual Movements <sup>[2]</sup>	
								Actual Movements		Factored Movements	Early Morning		Early Morning		Late Eve / Sat Afternoon	3 Month Running Total
	Day	Week-end	Day	Week-end	Day	Week	Week	Day	Week-end	Week	06:30-06:44	06:30-06:59	06:30-06:44	06:30-06:59	22:00-22:30 / 12:30-13:00	
30/12/2019	208	-	592	-	243	-	-	384	-	-	1	5	1	1	0	-
31/12/2019	138	-	592	-	163			454	-		0	4	2	2	0	46
Annual Total	83,963		111,000		96,564		120,000	27,037		23,436	369	1,415	-	-	287	-

# Annual Performance Report 2019

(Compliance with  
planning permission)



## Annex 3 Neighbouring Authority Agreement (NAA) Correspondence

Tim Halley  
London City Airport  
Hartmann Road  
Silvertown  
London  
E16 2PX

**Nick Fenwick**  
Interim Director of Planning and  
Development  
Newham Dockside  
1st Floor, West Wing  
Dockside Road  
London, E16 2QU

Contact: Dave Whittaker  
Airport Monitoring Officer  
[Dave.whittaker@newham.gov.uk](mailto:Dave.whittaker@newham.gov.uk)  
0203 373 7759  
Ref: 20/00046/S106

25<sup>th</sup> March 2020

Dear Mr. Halley

**London City Airport - Request to Comply with Schedule 9, Part 9 of the S106 Agreement Attached to Planning Permission 13/01228/FUL, granted permission on 26th July 2016: Neighbouring Authority Agreement with LB Tower Hamlets**

I write further to the email from Natalie Sinha dated 7th January 2020 and attachment regarding the above.

This is to confirm that the Council has no objection to the submitted draft Neighbouring Authority Agreement (NAA) and that you are now permitted to proceed to completion. Please take this as the written agreement required from the Council.

I would be grateful if you could forward the final version of the NAA to the Council's Airport Monitoring Officer when ready.

Yours sincerely



Nick Fenwick  
Interim Director of Planning and Development

# Annual Performance Report 2019

(Compliance with  
planning permission)



## Annex 4 Aircraft Noise Categorisation Scheme (ANCS) Report

## LONDON CITY AIRPORT

# AIRCRAFT NOISE CATEGORISATION SCHEME (ANCS) REPORT 2019

### Report to

London City Airport  
The Royal Docks  
London E16 2PB

A11327\_05\_RP014\_1.0  
29 April 2020

#### Partners (members)

David Charles, Philippa Gavey, Giles Greenhalgh, Roger Jowett, David Trew

**Bickerdike Allen Partners LLP** is an integrated practice of Architects, Acousticians, and Construction Technologists, celebrating over 50 years of continuous practice.

**Architects:** Design and project management services which cover all stages of design, from feasibility and planning through to construction on site and completion.

**Acoustic Consultants:** Expertise in planning and noise, the control of noise and vibration and the sound insulation and acoustic treatment of buildings.

**Construction Technology Consultants:** Expertise in building cladding, technical appraisals and defect investigation and provision of construction expert witness services.

<b>Contents</b>	<b>Page No.</b>
1.0 Introduction .....	4
2.0 Quota Count Classification System .....	5
3.0 Quota Count Budget .....	9
4.0 Noise Monitoring .....	12
Appendix 1: Derivation of Departure and Arrival Level for Quota Count Assessment	
Appendix 2: Quota Count Daily and Weekly Totals	
Appendix 3 2019 Noise Monitoring Results by Airline and Aircraft Type	

*This report and all matters referred to herein remain confidential to the Client unless specifically authorised otherwise, when reproduction and/or publication is verbatim and without abridgement. This report may not be reproduced in whole or in part or relied upon in any way by any third party for any purpose whatsoever without the express written authorisation of Bickerdike Allen Partners LLP. If any third party whatsoever comes into possession of this report and/or any underlying data or drawings then they rely on it entirely at their own risk and Bickerdike Allen Partners LLP accepts no duty or responsibility in negligence or otherwise to any such third party.*

*Bickerdike Allen Partners LLP hereby grant permission for the use of this report by the client body and its agents in the realisation of the subject development, including submission of the report to the design team, contractor and sub-contractors, relevant building control authority, relevant local planning authority and for publication on its website.*



## 1.0 INTRODUCTION

The City Airport Development Programme (CADP1) planning application (13/01228/FUL) was granted planning permission by the Secretaries of State for Communities and Local Government and Transport in July 2016 following an appeal and public inquiry which was held in March/April 2016.

Condition 18 of the permission required a new Aircraft Noise Categorisation Scheme (ANCS) to be submitted and approved to the Local Planning Authority (LPA) prior to the first beneficial use of the development. The ANCS was approved in December 2017 and implemented in January 2018. The ANCS was run in parallel with the previous Noise Factored Scheme (NFS) until 29<sup>th</sup> March 2019, when the London Borough of Newham (LBN) formally approved the review of the ANCS following its first year of operation. Following the approval of the review, the NFS has been superseded by the ANCS.

The ANCS comprises a Quota Count system as well as a maximum permitted noise level for aircraft based on their noise certificate.

Condition 19 requires that *“a report shall be submitted to the local planning authority annually on 1 June or the first working day thereafter as part of the Annual Performance Report on the performance and/or compliance with the approved Aircraft Noise Categorisation Scheme during the previous calendar year”*.

To satisfy this condition, the ANCS states that *“A report will also be produced as part of the Annual Performance Report that records the results of the assessments undertaken as part of the quota count regime, including but not limited to:-*

- *The quota counts used for each aircraft type during the calendar year in question;*
- *The total annual quota arising from aircraft operations during the calendar year;*
- *The results of noise monitoring undertaken during the calendar year, expressed for each aircraft and airline as averages in relation to sideline, flyover and approach noise levels as determined in accordance with Section 3.1 above;*
- *The quota counts to be used for each aircraft for the forthcoming calendar year; and*
- *The expected total annual quota for the forthcoming year.”*

This report covers the items listed above for 2019.

## 2.0 QUOTA COUNT CLASSIFICATION SYSTEM

The ANCS uses a Quota Count (QC) classification system which, in the case of departure noise, is based on official noise certification data derived from measurements made on actual aircraft which have been conducted in accordance with the International Civil Aviation Organisation (ICAO) certification process.

A similar noise certification process exists for civil aircraft on approach, but this is normally based on operations at a glide slope of 3 degrees, not 5.5 degrees as used at LCA. To account for this difference, aircraft noise modelling software (INM)<sup>1</sup> has been used to compute, at the approach noise certification point, the noise level based on a 5.5 degree glide slope using the INM in-built aircraft database. Whereas this method provides a reasonable correlation with measurements of turbofan aircraft at LCA, it does not reflect well the noisiness of turboprop aircraft on approach. As a result, measured data at LCA has been used to validate the turboprop aircraft types within the INM software to achieve a reasonable correlation between prediction of approach noise at the noise certification point and measurement.

The ANCS takes manufacturers' noise certification data to categorise aircraft and allocate a specific 'QC score' to each aircraft permitted to fly into and out of the airport. Each aircraft has a certified 'sideline', 'flyover' and 'approach' noise level. These are described in Appendix 1.

Each aircraft in operation at the airport is allocated a separate QC score (or 'count') for arrival and departure operations, based on its certificated noise levels (adjusted to reflect the approach glide slope used at LCA), and categorised into 1 dB bands (rather than 3 dB bands under the previous Noise Factored Movements system). As an example, the ANCS would allocate 0.5 'counts' to one aircraft departure or arrival in a noise band range of 88.0 dB to 88.9 dB and 0.1 'counts' to a quieter aircraft departure or arrival in a noise band range of 81.0 dB to 81.9 dB.

---

<sup>1</sup> Integrated Noise Model (INM) Version 7.0d, developed by the Federal Aviation Administration (FAA)

The QC classification bands are set out in Table 1 below:

Noise Level Band <sup>2</sup> , EPNdB	Quota Count (QC) Classification	Noise Level Band <sup>2</sup> , EPNdB	Quota Count (QC) Classification
90 – 90.9	0.8	78 – 78.9	0.05
89 – 89.9	0.63	77 – 77.9	0.04
88 – 88.9	0.5	76 – 76.9	0.0315
87 – 87.9	0.4	75 – 75.9	0.025
86 – 86.9	0.315	74 – 74.9	0.002
85 – 85.9	0.25	73 – 73.9	0.016
84 – 84.9	0.2	72 – 72.9	0.0125
83 – 83.9	0.16	71 – 71.9	0.01
82 – 82.9	0.125	70 – 70.9	0.008
81 – 81.9	0.1	69 – 69.9	0.0063
80 – 80.9	0.08	68 – 68.9	0.005
79 – 79.9	0.063		

**Table 1: Aircraft Noise Classifications**

*(NB. This classification system is a modification and extension of that operated by the designated airports in their Night Noise Quota Count System)*

---

<sup>2</sup> Noise level bands above those presented would not be permitted to operate at LCA as a result of the need to comply with the noise certification level limits within the scheme.

## 2.1 Derivation of Noise Certification Levels - Departures

Under regulations laid out by the European Commission<sup>3</sup>, all aircraft of the types used at LCA are required to hold a certificate that sets out the departure noise certification levels for the aircraft and states the weight at which the aircraft was certified.

Noise certification data for a given aircraft type can exist at a variety of different take-off weights. In addition, some aircraft of a given type are fitted with (potentially quieter) modifications, such as new engines or winglets, and are certificated accordingly. As a result of this, the selection of noise certification levels for an individual aircraft shall be based on:-

- i. the sideline and flyover departure noise values set out on the noise certificate for the individual aircraft; or
- ii. the values set out in the EASA<sup>4</sup> database for the specific aircraft type<sup>5</sup> accounting for the permitted Maximum Take-Off Weight (MTOW) of that aircraft at LCA. If no entry in the database is available for the specific aircraft at this MTOW, the entry for the next highest MTOW will be used, or, and only under exceptional circumstances,
- iii. evidence presented to LBN which demonstrates to their satisfaction, confirmed in writing, that the aircraft is capable of operating at its permitted MTOW at LCA within the noise constraints applicable at the airport.

Appendix 1 sets out how to derive the Departure Noise Level from the sideline and flyover noise certification values to enable a QC classification to be derived from Table 1.

---

<sup>3</sup> Commission Regulation (EU) 748/2012

<sup>4</sup> European Aviation Safety Agency *Aircraft type certificate data sheets*, [Online], Available: <http://www.easa.europa.eu/certification/type-certificates/aircraft.php> [20/05/2020].

<sup>5</sup> This relates to the noise certification levels given for the aircraft at a MTOW in the EASA database that equals the average of the maximum take-off weights specified for that aircraft type. If no entry is available, the noise certification levels for the next highest MTOW is to be used.

## 2.2 Derivation of Noise Certification Levels - Arrivals

The INM software is used to predict the noise generated by an aircraft on arrival at LCA and contains an in-built database of aircraft types, flight, thrust and noise parameters. This database of information has been developed in consultation with aircraft manufacturers.

The approach noise level for a given type of turbofan aircraft is derived by modelling with a glide slope of 5.5 degrees using the INM software, at the approach noise certification point described in ICAO Annex 16<sup>6</sup>. The resulting value is equivalent to the noise certification level for that given turbofan aircraft type for a 5.5 degrees approach.

The approach noise level for a given type of turboprop aircraft is derived by firstly adjusting the noise profile of the most appropriate aircraft type within the INM software to best match the approach noise level measured at LCA during a 5.5 degree approach. This aircraft type is then modelled using the INM to derive the noise value at the approach noise certification point described in ICAO Annex 16<sup>6</sup>. This resulting value is used as the approach noise certification level for that given turboprop aircraft type for the purposes of quota count classification.

Appendix 1 sets out how to derive the Arrival Noise Level from the approach noise level to enable a QC classification to be derived from Table 1.

---

<sup>6</sup> Annex 16 to the Convention on International Civil Aviation, Environmental Protection, Volume 1, Aircraft Noise

### **3.0 QUOTA COUNT BUDGET**

#### **3.1 Quota Count Period**

The quota count period applies throughout the operational hours of the airport as specified in the airport's entry in the UK AIP<sup>7</sup>. For the purposes of an annual assessment of the quota count and quota, the calendar year shall apply.

#### **3.2 Quota Count Budget**

LCA are required to operate within an overall noise quota budget as set out in the ANCS, which limits the number of annual flight movements. Each aircraft landing or taking-off counts towards the overall quota budget at the airport. The noisier the aircraft, the higher its QC score and the more it counts towards the total, resulting in fewer permitted flights within the budget. The use of 1 dB bands means that a small reduction in noise levels from a particular aircraft may result in it being assigned a lower QC score, thereby incentivising the use of quieter aircraft.

Performance against the quota budget is calculated by multiplying the number of departures and arrivals by the respective QC scores for an aircraft and then adding together the total QCs for each aircraft using the airport.

All aircraft operating at LCA are included in the quota, other than those engaged in training, aircraft testing and/or evaluation.

The quota count budget is:

- i) 22,000 per calendar year; and
- ii) 742.5 in any one week

Each year's total quota count is determined based on the schedule of actual aircraft movements for the year and established QC scores. The results are compared against LCA's permitted quota count budget as specified in i) and ii) above.

#### **3.3 2019 QC Assessment**

The QC score has been calculated for each aircraft movement during 2019. Totals for each day and week are presented in Appendix 2. These show that the airport has operated within its quota budget of 742.5 per week during this period.

---

<sup>7</sup> The UK Aeronautical Information Package, NATS Aeronautical Information Service

Table 2 presents the total QC score for 2019, broken down by aircraft type. This shows that the airport has operated within its quota budget of 22,000 for 2019.

Aircraft Type	Average QC Score <sup>1</sup>		2019 Total Mvts		2019 Quota Count <sup>2</sup>		
	Arr	Dep	Arr	Dep	Arr	Dep	Total
Airbus A318	0.080	0.400	254	254	20	102	122
Avro RJ85	0.063	0.253	1916	1914	121	484	605
BAe 146	0.063	0.315	234	236	15	74	89
Bombardier CS100	0.050	0.125	1378	1378	69	172	241
Dornier 328 Jet	0.125	0.160	486	486	61	78	139
Embraer 135	0.050	0.122	33	33	2	4	6
Embraer 170	0.063	0.400	4602	4609	290	1844	2134
Embraer 190	0.050	0.395	23171	23180	1159	9162	10321
ATR 72	0.250	0.105	551	550	138	58	196
Dash 8-400	0.125	0.110	5997	6000	750	660	1409
Fokker 50	0.400	0.160	251	252	100	40	141
Saab 2000	0.315	0.160	1040	1040	328	166	494
General Aviation: Jet Aircraft	0.050	0.113	2023	2025	101	229	330
General Aviation: Non-Jet Aircraft	0.309	0.155	35	35	11	5	16
<b>TOTAL</b>			<b>41971</b>	<b>41992</b>	<b>3163</b>	<b>13078</b>	<b>16242</b>

<sup>1</sup> Some aircraft types can have different departure QC scores depending on the specific aircraft flown. Therefore the average is given.

<sup>2</sup> QC totals rounded to nearest whole number. Overall totals are sum of unrounded values.

**Table 2: 2019 QC Assessment**



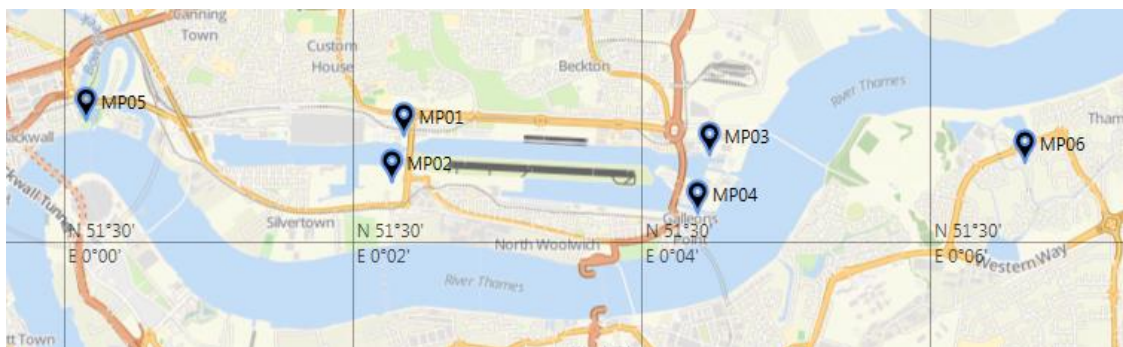
### **3.4 2020 Forecast**

Due to the ongoing coronavirus pandemic, there is a large amount of uncertainty relating to the 2020 forecast. The primary purpose of the 2020 forecast QC total is to assess whether the airport is likely to be approaching or above the QC budget in 2020. As it is very likely that the total for 2020 will be lower than that for 2019, in light of the situation LBN have agreed that it is not necessary to assess a 2020 forecast as part of this 2019 APR.

## 4.0 NOISE MONITORING

### 4.1 Aircraft Noise Measurement

The airport's noise monitoring system records the noise levels in terms of Effective Perceived Noise Level (EPNL) during aircraft departures and landings at six locations (NMTs 1 to 6) shown in Figure 1.



**Figure 1: Location of NMTs 1-6**

This data is reviewed on an annual basis to establish for each aircraft type, separately for each airline, the following information:

- the average annual SIDELINE<sup>8</sup> departure noise level (in EPNdB), from NMTs 1, 2, 3 and 4,
- the average annual FLYOVER departure noise level (in EPNdB), from NMTs 5 and 6,
- the average annual APPROACH noise level (in EPNdB), from NMTs 5 and 6.

---

<sup>8</sup> At LCA all aircraft types, both jet and propeller, are measured at the same "sideline" noise monitoring locations. Further explanation of "sideline" in this context is given in Appendix 1.

#### 4.1.1 Calibration Details

The sound level meter and microphone systems that comprise the NMTs are calibrated by a UKAS accredited institution every two years as a minimum, in accordance with ISO 20906:2009/Amd.1:2013 “Acoustics – Unattended monitoring of aircraft sound in the vicinity of airports”.

During 2019, on-site microphone calibration was carried out quarterly. The sensitivity adjustment was 0.2 dB or lower for each calibration check. This is within normal tolerances and suggests that the NMTs were functioning normally.

#### 4.1.2 Monitoring Results

A literal interpretation of the ANCS requirement is to compare the year on year changes for every aircraft type and associated airline. However it is often not appropriate to assess every combination, as when there are small numbers of results this will likely show large differences due to the natural variation in measurement results, for example due to variation in aircraft weights and weather conditions. Therefore only aircraft which recorded at least one arrival and departure measurement per day on average have been included in the comparison. This approach has been agreed with LBN.

The 2019 noise levels for the aircraft type and airline combinations which recorded at least one arrival and departure measurement per day are presented in Table 3, alongside their change from 2018. The 2019 noise levels for all aircraft and airline combinations are given in Appendix 3.

Aircraft Type Code	Airline Code	Sideline (NMTs 1-4)		Flyover (NMTs 5-6)		Approach (NMTs 5-6)	
		Avg Level, EPNdB	Change from 2018 <sup>[1]</sup>	Avg Level, EPNdB	Change from 2018 <sup>[1]</sup>	Avg Level, EPNdB	Change from 2018 <sup>[1]</sup>
AT72	BE	92.0	-0.3	82.9	0.0	87.8	0.6
BCS1	LX	93.5	-0.5	84.5	0.2	83.2	-0.1
DH8D	BE	92.1	-0.3	82.8	-0.3	84.1	-0.1
DH8D	LG	91.9	-0.4	82.4	-0.4	84.5	-0.1
E170	BA	97.8	-0.4	88.8	0.0	84.0	-0.5
E190	AZ	98.1	-0.6	88.0	-0.2	84.4	-0.3
E190	BA	99.0	-0.3	88.3	0.2	84.9	-0.3
E190	KL	98.9	-0.4	87.9	-0.4	85.0	-0.3

Aircraft Type Code	Airline Code	Sideline (NMTs 1-4)		Flyover (NMTs 5-6)		Approach (NMTs 5-6)	
		Avg Level, EPNdB	Change from 2018 <sup>[1]</sup>	Avg Level, EPNdB	Change from 2018 <sup>[1]</sup>	Avg Level, EPNdB	Change from 2018 <sup>[1]</sup>
E190	LH	98.9	-0.1	87.6	0.1	85.6	-0.1
E190	LO	99.9	- [2]	88.1	- [2]	84.5	- [2]
E190	LX	99.3	0.1	88.2	0.1	85.5	-0.3
E190	TP	99.5	-0.7	88.3	-0.2	84.4	-0.4
J328	BA	92.3	-0.2	84.8	0.7	85.9	0.1
RJ85	EI	98.6	-0.4	90.9	-0.3	83.2	0.7
SB20	BA	92.1	-0.3	83.7	-0.6	81.8	-0.5

<sup>[1]</sup> Averages are rounded to 1 decimal place. Changes are based on the unrounded values. Negative change indicates a reduction in noise level.

<sup>[2]</sup> LOT Airlines (LO) did not operate from LCA in 2018, therefore no comparison is possible. The results are in line with other E190 operators.

**Table 3: 2019 Noise Monitoring Results and Comparison to 2018**

The results in Table 3 show that for all of the most commonly operating aircraft and airline combinations, there has been no significant change<sup>9</sup> in the average measured noise levels when compared to 2018. Therefore the Quota Count (QC) classifications used in 2018 are considered to remain appropriate.

**Nick Williams**  
for Bickerdike Allen Partners LLP

**David Charles**  
Partner

<sup>9</sup> It is noted that the changes in measured noise levels are broadly of a similar magnitude to changes in calibration (+/- 0.2 dB). However, the variation in measured levels is not consistent between aircraft types and therefore the calibration changes are not considered to be the primary cause of the change in measured noise levels. For example, the changes at NMTs 5-6 range from +0.7 to -0.6 for departures and from +0.7 to -0.5 for arrivals. If these changes were due to a shift in calibration, then one would expect that it would affect different aircraft similarly.

## APPENDIX 1

### DERIVATION OF DEPARTURE AND ARRIVAL LEVEL FOR QUOTA COUNT ASSESSMENT

The basic principles of how to calculate the departure and arrival level as part of the Night Noise Quota Counts that are in place at Heathrow, Gatwick and Stansted Airports are described in a report prepared by the Civil Aviation Authority<sup>10</sup>.

These principles are adopted in the LCA Quota Count Scheme with some slight modifications and are as follows:-

- i) The noise classification of aircraft into 1 EPNdB wide QC categories or bands is based on certificated (for departure) and calculated (for approach) Effective Perceived Noise Level (EPNL, in units EPNdB).
- ii) The Departure Noise Level is determined from the aircraft's noise certification values (EPNLs) for sideline and flyover based on the following equation:  
$$\text{Departure Noise Level} = (\text{Sideline EPNL} + \text{Flyover EPNL})/2$$
- iii) The Arrival Noise Level is determined from the approach noise level derived as described in Section 2.2 above and the equation:  
$$\text{Arrival Noise Level} = \text{Approach Noise Level EPNL} - 9$$
- iv) For propeller aircraft with maximum take-off weight (MTOW) not exceeding 5700 kg (i.e. those not subject to such criteria) and older propeller aircraft also not subject to these criteria, aircraft are classified according to assumptions based on available noise data.
- v) The Departure Noise Level and (separately) the Arrival Noise Level are matched in Table A1.1 with the relevant noise band to determine the associated quota count (QC) classification for the specific aircraft type.

---

<sup>10</sup> ERCD Report 0204 Review of the Quota Count (QC) System: Re-Analysis of the Differences Between Arrivals and Departures

Noise Level Band, EPNdB	Quota Count (QC) Classification	Noise Level Band, EPNdB	Quota Count (QC) Classification
90 – 90.9	0.8	78 – 78.9	0.05
89 – 89.9	0.63	77 – 77.9	0.04
88 – 88.9	0.5	76 – 76.9	0.0315
87 – 87.9	0.4	75 – 75.9	0.025
86 – 86.9	0.315	74 – 74.9	0.002
85 – 85.9	0.25	73 – 73.9	0.016
84 – 84.9	0.2	72 – 72.9	0.0125
83 – 83.9	0.16	71 – 71.9	0.01
82 – 82.9	0.125	70 – 70.9	0.008
81 – 81.9	0.1	69 – 69.9	0.0063
80 – 80.9	0.08	68 – 68.9	0.005
79 – 79.9	0.063		

**Table A1.1: Aircraft Noise Classifications**

*(NB. This classification system is a modification and extension of that operated by the designated airports in their Night Noise Quota Count System)*

The terms “sideline” and “flyover” appear in this ANCS and also in LCA’s Noise Management and Mitigation Scheme (NOMMS) but carry different meanings in each. The following section provides an explanation of these terms in the context of both the ANCS and the NOMMS.



## Explanation of “Sideline” and “Flyover” Points in the NOMMS and ANCS

The terms “sideline” and “flyover” are used in the NOMMS<sup>11</sup> and ANCS<sup>12</sup> to describe a point or location where aircraft noise is either measured or assessed. In the NOMMS, the terms are used to describe locations where London City Airport’s (LCA’s) fixed noise monitors are located. In the ANCS, the terms are used to describe noise certification points prescribed by the International Civil Aviation Organisation (ICAO). Although the terms “sideline” and “flyover” used in the NOMMS and ANCS are identical, they are not in the same position. To avoid confusion, this annex provides a short description of the location of the sideline and flyover points for both the NOMMS and ANCS.

NOMMS uses a number of fixed noise monitors to determine noise levels from departing and arriving aircraft at the airport. For historic reasons the location of these monitors are categorised as either *sideline* or *flyover* locations depending on where they are with respect to the flight path of departing or arriving aircraft. The results are used primarily for noise management purposes through a Penalties and Incentives Scheme.

The ANCS categorises and assesses aircraft by using noise certification data determined in accordance with procedures set out by ICAO. Each aircraft operating in the UK has a noise certificate describing its noise emissions under carefully controlled conditions, at three noise certification points. These certification levels are indicators of aircraft noise performance and are determined at three points in accordance with prescribed international procedures. These procedures also use the terms *sideline* and *flyover* for two of these three points (the third is the *approach* point).

### NOMMS - noise monitor locations

A continuous noise monitoring system was first installed and became operational at the airport in 1992. A system of this type has been in place ever since that time and was upgraded in 2000 when a flight track monitoring system was also installed. The noise and flight track monitoring system was further updated in 2013. Historically, this noise and flight track monitoring system (NFTM) comprised four fixed noise monitors. These four monitors known as NMTs 1 to 4 are all located close to the airport.

Under the NOMMS, two new fixed noise monitors (NMTs 5 and 6) and a mobile noise monitor are incorporated within the NFTM.

---

<sup>11</sup> NOMMS – Noise Management and Mitigation Strategy

<sup>12</sup> ANCS – Aircraft Noise Categorisation Scheme

The six fixed noise monitors shown in Figure A1.1 are used to measure noise levels during an aircraft departure. These measured noise levels are used to determine the Sideline Noise Level and Flyover Noise Level for comparison with limits set in relation to the airport's Penalties and Incentives scheme which forms part of the NOMMS. The Sideline Noise Level and the Flyover Noise Level are compared against the fixed penalty limit and credit thresholds to determine whether a credit or penalty should be applied to the operator of the aircraft.

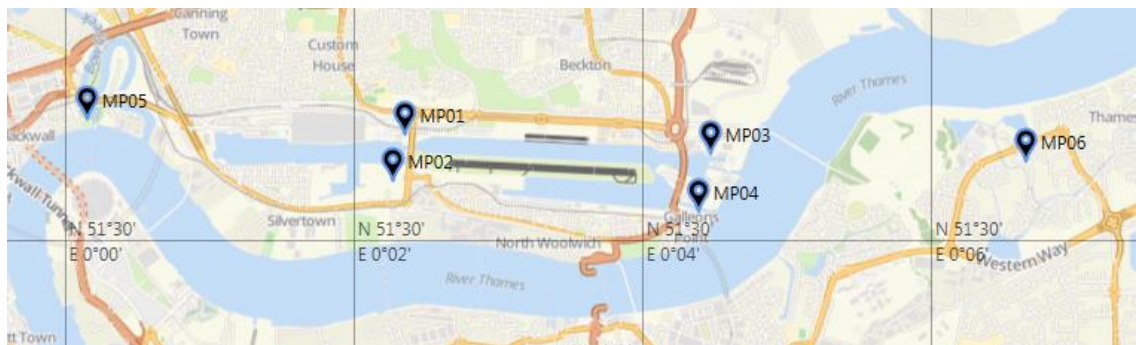
As NMTs 1 and 2, and 3 and 4 lie on either side of the flight path of a departing or an arriving aircraft these are designated as "sideline" locations.

For aircraft departures on Runway 27, the Sideline Noise Level is determined from the arithmetic average of the maximum noise level ( $L_{Amax,S}$ ) measured at NMT 1 and 2. For aircraft departures on Runway 09, the Sideline Noise Level is determined from the arithmetic average of the maximum noise level ( $L_{Amax,S}$ ) measured at NMT 3 and 4.

As NMTs 5 and 6 lie approximately underneath the flight path of a departing aircraft these are designated as "flyover" locations.

For aircraft departures on Runway 27, the Flyover Noise Level is the maximum noise level ( $L_{Amax,S}$ ) measured at NMT 5. For aircraft departures on Runway 09, the Flyover Noise Level is the maximum noise level ( $L_{Amax,S}$ ) measured at NMT 6.

The locations of NMTs 1 to 6 are shown in Figure A1.1.



**Figure A1.1: NOMMS - Location of Noise Monitoring Terminals**

#### **ANCS - noise certification level positions**

The ANCS uses a Quota Count (QC) system as a means of limiting the noise generated by aircraft movements in a transparent and easily administered manner. It operates in a similar manner to the Night Noise Quota Count scheme used at the designated airports such as Heathrow, Gatwick and Stansted, and used at other UK airports such as Manchester. The QC system at LCA however applies during the daytime, not the night-time. LCA are the first airport to operate a daytime QC system in the UK. As is the case for the Night Noise Quota Count scheme, the LCA QC system is

based on aircraft noise certification data where each aircraft type is allotted a QC value based on the noise generated by the aircraft type on departure and arrival under prescribed certification conditions<sup>13</sup>.

Certification levels, determined in accordance with prescribed procedures under ICAO Annex 16<sup>14</sup> and given in terms of the Effective Perceived Noise Level (EPNL), are used within the ANCS for a variety of reasons, including:

- to comply with UK Regulations<sup>15</sup>
- they are reliable and independently verified indicators of aircraft noise performance;
- they are freely available for practically every relevant aircraft type<sup>16</sup>.

Certificated noise levels for departing and arriving aircraft are determined under carefully controlled conditions at three positions:

- For jet-powered aeroplanes, 450 metres sideline at noisiest point during an aircraft departure. For propeller aircraft, depending on when the aircraft was certified, the point on the extended centre line of the runway 650 metres vertically below the climb-out flight path at full take-off power (referred to as Sideline or Lateral point);
- 6500 metres from start of roll, directly beneath the departing aircraft (referred to as Flyover point);
- 2000 metres from runway threshold, directly beneath the arriving aircraft (referred to as Approach point).

Figure A1.2, reproduced from ERCD 0205<sup>17</sup>, illustrates these three noise certification points below.

---

<sup>13</sup> Based on the certified operating weight or maximum permitted operating weight at LCA or on evidence presented to LBN which demonstrates to their satisfaction, confirmed in writing, that the aircraft is capable of operating at its permitted MTOW at LCA within the noise constraints applicable at the airport.

<sup>14</sup> Annex 16 to the Convention on International Civil Aviation, Environmental Protection, Volume 1, Aircraft Noise

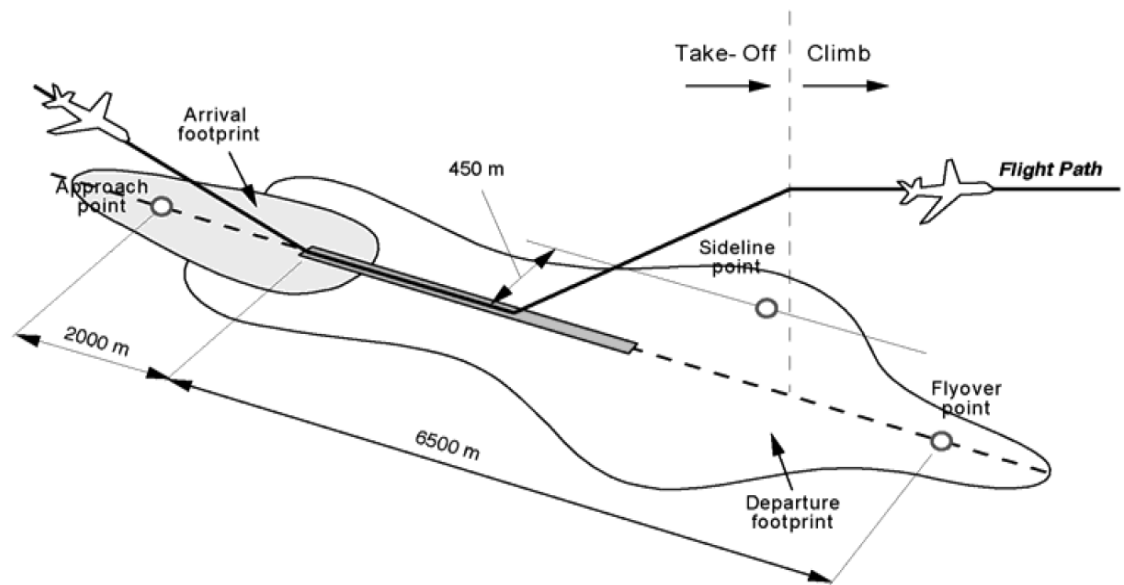
<sup>15</sup> Aerodrome (Noise Restrictions) (Rules and Procedures) Regulations 2003

<sup>16</sup> European Aviation Safety Agency (2016) *Aircraft type certificate data sheets*, [Online], Available: <http://www.easa.europa.eu/certification/type-certificates/aircraft.php> [6/09/2016].

<sup>17</sup> ERCD Report 0205 Quota Count Validation Study: Noise Measurements and Analysis, Civil Aviation Authority

## AIRCRAFT NOISE CERTIFICATION MEASUREMENT POINTS

in relation to illustrative footprints



**Figure A1.2: Aircraft noise certification measurement points**

The Sideline point shown is for jet-powered aircraft. For propeller aircraft, depending on when the aircraft was certified, the sideline position may be the point on the extended centre line of the runway 650 metres vertically below the climb-out flight path at full take-off power. For reasons given in ERCD 0205, the use of a different measurement position for sideline noise from propeller aircraft is because of practical difficulties in measuring sideline noise at the 450 m sideline point required for jet-powered aircraft. ERCD found that the results obtained in the two locations are practically the same.

## APPENDIX 2

### QUOTA COUNT DAILY AND WEEKLY TOTALS

The following table gives the daily and weekly Quota Count totals for 2019. Values have been rounded to the nearest whole number, therefore in some cases the sum of the daily total may not match the weekly total.

Date	Daily Quota Count	Weekly Total
31/12/2018	29	203
01/01/2019	21	
02/01/2019	39	
03/01/2019	39	
04/01/2019	40	
05/01/2019	11	
06/01/2019	26	
07/01/2019	47	271
08/01/2019	45	
09/01/2019	48	
10/01/2019	47	
11/01/2019	45	
12/01/2019	13	
13/01/2019	26	286
14/01/2019	49	
15/01/2019	47	
16/01/2019	49	
17/01/2019	49	
18/01/2019	50	
19/01/2019	13	288
20/01/2019	27	
21/01/2019	50	
22/01/2019	49	
23/01/2019	51	
24/01/2019	51	

Date	Daily Quota Count	Weekly Total
25/01/2019	48	
26/01/2019	12	
27/01/2019	27	
28/01/2019	54	311
29/01/2019	54	
30/01/2019	57	
31/01/2019	54	
01/02/2019	51	
02/02/2019	12	
03/02/2019	28	
04/02/2019	55	315
05/02/2019	56	
06/02/2019	57	
07/02/2019	58	
08/02/2019	49	
09/02/2019	14	
10/02/2019	27	
11/02/2019	55	316
12/02/2019	54	
13/02/2019	56	
14/02/2019	56	
15/02/2019	52	
16/02/2019	14	
17/02/2019	29	
18/02/2019	56	300
19/02/2019	57	
20/02/2019	57	
21/02/2019	58	

Date	Daily Quota Count	Weekly Total
22/02/2019	39	
23/02/2019	2	
24/02/2019	30	
25/02/2019	58	325
26/02/2019	59	
27/02/2019	58	
28/02/2019	55	
01/03/2019	56	
02/03/2019	15	
03/03/2019	25	
04/03/2019	56	323
05/03/2019	56	
06/03/2019	57	
07/03/2019	58	
08/03/2019	55	
09/03/2019	14	
10/03/2019	26	
11/03/2019	54	321
12/03/2019	51	
13/03/2019	56	
14/03/2019	58	
15/03/2019	57	
16/03/2019	15	
17/03/2019	29	
18/03/2019	58	331
19/03/2019	58	
20/03/2019	59	
21/03/2019	56	



Date	Daily Quota Count	Weekly Total
22/03/2019	56	
23/03/2019	15	
24/03/2019	29	
25/03/2019	56	332
26/03/2019	59	
27/03/2019	60	
28/03/2019	60	
29/03/2019	56	
30/03/2019	15	
31/03/2019	27	
01/04/2019	57	333
02/04/2019	59	
03/04/2019	60	
04/04/2019	58	
05/04/2019	56	
06/04/2019	15	
07/04/2019	28	
08/04/2019	56	331
09/04/2019	57	
10/04/2019	59	
11/04/2019	59	
12/04/2019	55	
13/04/2019	15	
14/04/2019	28	
15/04/2019	55	287
16/04/2019	55	
17/04/2019	57	
18/04/2019	53	

Date	Daily Quota Count	Weekly Total
19/04/2019	31	
20/04/2019	13	
21/04/2019	23	
22/04/2019	31	298
23/04/2019	56	
24/04/2019	57	
25/04/2019	57	
26/04/2019	55	
27/04/2019	14	
28/04/2019	27	
29/04/2019	59	335
30/04/2019	59	
01/05/2019	60	
02/05/2019	59	
03/05/2019	57	
04/05/2019	15	
05/05/2019	26	
06/05/2019	34	310
07/05/2019	58	
08/05/2019	59	
09/05/2019	58	
10/05/2019	57	
11/05/2019	15	
12/05/2019	29	
13/05/2019	58	340
14/05/2019	59	
15/05/2019	60	
16/05/2019	61	

Date	Daily Quota Count	Weekly Total
17/05/2019	56	
18/05/2019	16	
19/05/2019	30	
20/05/2019	57	339
21/05/2019	58	
22/05/2019	60	
23/05/2019	60	
24/05/2019	59	
25/05/2019	17	
26/05/2019	29	
27/05/2019	35	316
28/05/2019	59	
29/05/2019	60	
30/05/2019	58	
31/05/2019	58	
01/06/2019	16	
02/06/2019	29	
03/06/2019	58	340
04/06/2019	57	
05/06/2019	59	
06/06/2019	61	
07/06/2019	58	
08/06/2019	17	
09/06/2019	29	
10/06/2019	57	338
11/06/2019	58	
12/06/2019	59	
13/06/2019	59	

Date	Daily Quota Count	Weekly Total
14/06/2019	59	
15/06/2019	16	
16/06/2019	30	
17/06/2019	59	333
18/06/2019	59	
19/06/2019	57	
20/06/2019	59	
21/06/2019	56	
22/06/2019	15	
23/06/2019	29	
24/06/2019	56	329
25/06/2019	55	
26/06/2019	59	
27/06/2019	58	
28/06/2019	56	
29/06/2019	16	
30/06/2019	30	
01/07/2019	55	318
02/07/2019	55	
03/07/2019	53	
04/07/2019	56	
05/07/2019	54	
06/07/2019	15	
07/07/2019	29	
08/07/2019	55	319
09/07/2019	55	
10/07/2019	56	
11/07/2019	58	

Date	Daily Quota Count	Weekly Total
12/07/2019	52	
13/07/2019	15	
14/07/2019	29	
15/07/2019	55	313
16/07/2019	53	
17/07/2019	55	
18/07/2019	56	
19/07/2019	53	
20/07/2019	14	
21/07/2019	27	
22/07/2019	54	298
23/07/2019	55	
24/07/2019	52	
25/07/2019	48	
26/07/2019	48	
27/07/2019	14	
28/07/2019	27	
29/07/2019	53	306
30/07/2019	52	
31/07/2019	53	
01/08/2019	54	
02/08/2019	51	
03/08/2019	14	
04/08/2019	29	
05/08/2019	51	290
06/08/2019	50	
07/08/2019	50	
08/08/2019	51	

Date	Daily Quota Count	Weekly Total
09/08/2019	49	
10/08/2019	12	
11/08/2019	27	
12/08/2019	48	291
13/08/2019	51	
14/08/2019	50	
15/08/2019	52	
16/08/2019	49	
17/08/2019	13	
18/08/2019	28	
19/08/2019	51	
20/08/2019	52	295
21/08/2019	51	
22/08/2019	51	
23/08/2019	49	
24/08/2019	13	
25/08/2019	28	
26/08/2019	33	
27/08/2019	52	288
28/08/2019	53	
29/08/2019	55	
30/08/2019	52	
31/08/2019	15	
01/09/2019	29	
02/09/2019	54	318
03/09/2019	55	
04/09/2019	55	
05/09/2019	57	

Date	Daily Quota Count	Weekly Total
06/09/2019	53	
07/09/2019	15	
08/09/2019	29	
09/09/2019	59	334
10/09/2019	57	
11/09/2019	58	
12/09/2019	58	
13/09/2019	57	
14/09/2019	16	
15/09/2019	29	
16/09/2019	59	333
17/09/2019	58	
18/09/2019	59	
19/09/2019	57	
20/09/2019	58	
21/09/2019	14	
22/09/2019	29	
23/09/2019	57	335
24/09/2019	57	
25/09/2019	58	
26/09/2019	58	
27/09/2019	61	
28/09/2019	15	
29/09/2019	29	
30/09/2019	58	332
01/10/2019	56	
02/10/2019	59	
03/10/2019	58	

Date	Daily Quota Count	Weekly Total
04/10/2019	58	
05/10/2019	15	
06/10/2019	29	
07/10/2019	58	329
08/10/2019	58	
09/10/2019	57	
10/10/2019	56	
11/10/2019	56	
12/10/2019	15	
13/10/2019	28	
14/10/2019	56	330
15/10/2019	57	
16/10/2019	58	
17/10/2019	59	
18/10/2019	58	
19/10/2019	15	
20/10/2019	28	
21/10/2019	58	327
22/10/2019	58	
23/10/2019	57	
24/10/2019	56	
25/10/2019	54	
26/10/2019	15	
27/10/2019	27	
28/10/2019	55	319
29/10/2019	56	
30/10/2019	57	
31/10/2019	57	



Date	Daily Quota Count	Weekly Total
01/11/2019	54	
02/11/2019	13	
03/11/2019	27	
04/11/2019	56	312
05/11/2019	51	
06/11/2019	57	
07/11/2019	57	
08/11/2019	53	
09/11/2019	13	
10/11/2019	26	
11/11/2019	55	317
12/11/2019	56	
13/11/2019	56	
14/11/2019	57	
15/11/2019	54	
16/11/2019	14	
17/11/2019	27	
18/11/2019	56	315
19/11/2019	54	
20/11/2019	56	
21/11/2019	56	
22/11/2019	54	
23/11/2019	13	
24/11/2019	26	
25/11/2019	53	309
26/11/2019	56	
27/11/2019	55	
28/11/2019	55	

Date	Daily Quota Count	Weekly Total
29/11/2019	53	
30/11/2019	9	
01/12/2019	27	
02/12/2019	57	323
03/12/2019	57	
04/12/2019	56	
05/12/2019	57	
06/12/2019	56	
07/12/2019	13	
08/12/2019	26	
09/12/2019	57	320
10/12/2019	55	
11/12/2019	57	
12/12/2019	57	
13/12/2019	52	
14/12/2019	14	
15/12/2019	28	
16/12/2019	55	305
17/12/2019	50	
18/12/2019	54	
19/12/2019	54	
20/12/2019	52	
21/12/2019	14	
22/12/2019	27	
23/12/2019	49	176
24/12/2019	30	
25/12/2019	0	
26/12/2019	19	

Date	Daily Quota Count	Weekly Total
27/12/2019	39	
28/12/2019	13	
29/12/2019	25	
30/12/2019	43	-
31/12/2019	28	
01/01/2020	-	
02/01/2020	-	
03/01/2020	-	
04/01/2020	-	
05/01/2020	-	

**Table A2.1: 2019 Daily and Weekly Quota Count Totals**

## APPENDIX 3

### 2019 NOISE MONITORING RESULTS BY AIRLINE AND AIRCRAFT TYPE

Table A3.1 presents the 2019 noise monitoring results for each aircraft and airline combination. Results are given separately for sideline, flyover, and approach. Aircraft and airline combinations with fewer than 10 results have been grouped as “Other”. Average noise levels have been rounded to 1 decimal place.

Aircraft Code	Airline Code	Sideline (NMTs 1-4)		Flyover (NMTs 5-6)		Approach (NMTs 5-6)	
		No. Results	Avg Level, EPNdB	No. Results	Avg Level, EPNdB	No. Results	Avg Level, EPNdB
A318	BA	469	98.5	236	86.2	238	85.5
AT72	BE	1024	92.0	500	82.9	514	87.8
AT72	SI	18	91.1	9	82.4	7	88.4
B350	Other	7	88.5	1	83.6	3	84.6
B461	Other	10	98.3	5	86.7	5	82.2
B462	BA	363	95.2	186	87.8	187	81.8
B462	BE	52	97.6	26	88.6	25	82.5
B462	Other	18	92.1	9	85.9	10	82.1
BCS1	LX	2602	93.5	1296	84.5	1275	83.2
BE20	Other	2	87.6	1	79.0	1	83.6
C25A	AW	63	91.3	20	80.1	25	79.6
C25A	CL	16	91.6	7	81.6	4	78.3
C25A	EL	10	95.6	5	83.7	4	77.7
C25A	JD	10	93.8	5	84.9	5	79.8
C25A	Other	40	92.4	20	80.7	15	79.8
C25B	EF	14	91.8	6	80.0	2	78.2
C25B	JF	18	93.2	8	78.4	6	79.2
C25B	Other	12	93.0	6	78.6	4	80.2
C25C	Other	22	91.6	8	79.9	7	77.3
C510	AS	24	90.9	11	79.7	3	77.6
C510	GA	221	90.3	106	81.0	45	79.2
C510	Other	10	89.9	5	80.8	0	-

Aircraft Code	Airline Code	Sideline (NMTs 1-4)		Flyover (NMTs 5-6)		Approach (NMTs 5-6)	
		No. Results	Avg Level, EPNdB	No. Results	Avg Level, EPNdB	No. Results	Avg Level, EPNdB
C510	SX	18	90.9	9	81.0	0	-
C525	Other	2	91.2	1	83.8	1	78.6
C550	LE	14	89.1	6	79.3	5	79.9
C550	Other	14	84.1	6	80.2	6	78.9
C550	XJ	92	89.3	44	80.2	22	78.0
C560	Other	8	90.5	4	79.5	4	81.1
C56X	AH	97	88.6	45	79.7	48	80.7
C56X	DC	40	90.3	20	78.5	21	78.1
C56X	HT	14	90.9	6	77.5	6	80.3
C56X	JE	12	90.2	4	79.0	7	79.9
C56X	KR	12	91.2	6	77.9	5	80.0
C56X	LN	18	90.9	7	79.5	11	80.3
C56X	NJ	618	90.1	237	77.7	301	80.8
C56X	OO	10	91.8	2	79.0	5	82.2
C56X	Other	54	91.4	24	79.4	26	81.2
C680	DC	67	90.8	23	78.6	34	78.2
C680	EF	10	91.0	3	76.0	5	77.5
C680	EU	18	91.8	6	77.7	6	78.0
C680	N8	14	86.1	7	82.0	3	77.6
C680	NJ	36	90.7	9	78.0	17	78.9
C680	Other	22	90.6	10	78.4	13	77.8
C68A	DC	20	92.8	10	78.4	12	78.7
C68A	NJ	527	90.0	189	77.7	256	78.7
C68A	Other	16	91.4	8	80.3	8	78.7
CL30	Other	6	94.2	3	80.2	4	81.0
CL60	HB	20	89.2	5	76.3	10	81.7

Aircraft Code	Airline Code	Sideline (NMTs 1-4)		Flyover (NMTs 5-6)		Approach (NMTs 5-6)	
		No. Results	Avg Level, EPNdB	No. Results	Avg Level, EPNdB	No. Results	Avg Level, EPNdB
CL60	N7	10	90.7	3	78.8	6	80.4
CL60	Other	12	89.5	6	76.8	6	81.4
DH8D	BE	7863	92.1	3923	82.8	3932	84.1
DH8D	LG	3419	91.9	1672	82.4	1707	84.5
DH8D	Other	2	101.3	1	89.3	0	-
E135	AB	24	91.6	11	79.3	14	73.0
E135	LN	18	91.9	9	80.9	9	79.8
E135	Other	20	91.4	9	80.3	6	81.7
E170	BA	8762	97.8	4392	88.8	4361	84.0
E190	AZ	3247	98.1	1610	88.0	1622	84.4
E190	BA	27618	99.0	13788	88.3	13832	84.9
E190	BE	172	99.1	77	88.0	83	85.2
E190	KL	4746	98.9	2372	87.9	2377	85.0
E190	LH	1826	98.9	907	87.6	916	85.6
E190	LO	2927	99.9	1450	88.1	1464	84.5
E190	LX	1951	99.3	964	88.2	979	85.5
E190	Other	10	98.0	5	85.3	4	84.1
E190	RE	26	97.8	13	87.6	13	77.8
E190	ST	10	96.9	5	87.1	4	84.5
E190	TP	1362	99.5	679	88.3	685	84.4
E545	Other	4	90.6	2	80.1	2	77.9
E550	Other	4	95.4	2	80.7	1	78.2
E550	SX	16	93.0	8	78.2	7	78.7
E55P	KB	16	95.4	8	79.9	8	79.6
E55P	NJ	309	92.6	128	79.3	158	79.1
E55P	Other	14	94.6	6	81.6	7	80.5

Aircraft Code	Airline Code	Sideline (NMTs 1-4)		Flyover (NMTs 5-6)		Approach (NMTs 5-6)	
		No. Results	Avg Level, EPNdB	No. Results	Avg Level, EPNdB	No. Results	Avg Level, EPNdB
F2TH	CA	14	91.5	7	80.9	5	76.9
F2TH	DB	48	93.4	20	80.4	15	78.6
F2TH	FH	12	91.3	4	80.7	2	77.6
F2TH	MM	16	84.3	8	82.5	8	77.8
F2TH	OO	26	91.7	13	80.7	14	79.5
F2TH	Other	30	91.5	15	81.0	10	78.1
F2TH	PH	48	91.1	23	82.1	21	78.5
F50	WP	481	92.8	235	84.5	232	89.6
F900	Other	56	93.0	28	83.3	22	79.5
F900	SN	12	91.1	6	86.3	5	79.0
F900	XR	15	95.5	7	84.0	7	79.6
FA50	Other	10	99.2	4	87.5	4	79.2
FA7X	CA	50	89.0	25	82.5	26	81.1
FA7X	HB	49	90.4	25	84.9	28	80.5
FA7X	MM	10	90.6	5	82.8	5	81.1
FA7X	Other	74	90.9	38	82.5	35	80.8
FA7X	RB	14	90.6	7	83.5	6	81.4
FA7X	SH	160	89.0	78	80.6	80	81.5
FA7X	WG	14	90.7	7	81.4	9	71.7
FA8X	GX	78	89.3	38	81.6	37	81.0
FA8X	MM	14	91.4	6	81.0	7	80.6
FA8X	Other	29	90.9	15	81.7	12	80.5
FA8X	SH	26	89.4	13	80.4	14	80.5
G280	ED	14	92.7	5	82.4	5	81.8
G280	Other	15	92.9	7	80.7	8	81.2
GL5T	FY	12	91.8	4	79.7	4	79.4



Aircraft Code	Airline Code	Sideline (NMTs 1-4)		Flyover (NMTs 5-6)		Approach (NMTs 5-6)	
		No. Results	Avg Level, EPNdB	No. Results	Avg Level, EPNdB	No. Results	Avg Level, EPNdB
GL5T	Other	4	92.0	2	78.3	4	81.2
GL7T	Other	10	95.2	4	82.0	4	82.4
GLEX	FH	11	93.4	4	80.4	6	80.3
GLEX	IJ	12	96.9	6	82.2	4	81.1
GLEX	LM	10	94.0	5	78.9	5	80.4
GLEX	N1	18	94.2	8	82.3	10	79.9
GLEX	NJ	50	88.3	25	81.7	26	80.3
GLEX	Other	20	95.6	9	80.5	10	81.2
H25B	NJ	60	90.2	30	81.6	29	81.7
H25B	Other	17	89.2	9	84.0	8	81.5
H25B	XJ	12	92.5	6	81.5	5	80.5
J328	BA	894	92.3	443	84.8	447	85.9
LJ45	AD	12	94.8	4	81.1	6	80.0
LJ45	Other	2	94.4	0	-	1	78.6
P180	Other	6	93.3	3	87.1	2	90.6
P180	XG	43	93.5	22	86.3	21	90.6
PA31	Other	4	92.7	2	88.1	1	84.2
PC24	Other	2	95.1	1	83.7	1	85.5
RJ85	BA	154	99.5	77	91.3	75	83.0
RJ85	EI	3410	98.6	1701	90.9	1728	83.2
RJ85	Other	12	98.3	6	89.7	3	83.0
SB20	BA	1679	92.1	838	83.7	833	81.8
SB20	BE	256	91.6	129	83.4	131	81.3
SB20	Other	6	90.9	2	84.2	2	81.7

**Table A3.1: 2019 Noise Monitoring Results**

# Annual Performance Report 2019

(Compliance with  
planning permission)



## Annex 5 Community and Airline Annual Report (IPS Report)

**LONDON CITY AIRPORT**  
**ANNUAL COMMUNITY AND AIRLINE REPORT**  
**2019**

**Report to**

**London City Airport  
The Royal Docks  
London E16 2PB**

**A11327\_07\_RP003\_2.0  
30 March 2020**

**Partners (members)**

David Charles, Philippa Gavey, Giles Greenhalgh, Roger Jowett, David Trew

**Bickerdike Allen Partners LLP** is an integrated practice of Architects, Acousticians, and Construction Technologists, celebrating over 50 years of continuous practice.

**Architects:** Design and project management services which cover all stages of design, from feasibility and planning through to construction on site and completion.

**Acoustic Consultants:** Expertise in planning and noise, the control of noise and vibration and the sound insulation and acoustic treatment of buildings.

**Construction Technology Consultants:** Expertise in building cladding, technical appraisals and defect investigation and provision of construction expert witness services.

<b>Contents</b>	<b>Page No.</b>
1.0 Introduction .....	4
2.0 Incentives and Penalties Scheme (IPS).....	5
Appendix 1: London City Airport Community Fund Grants 2019	
Appendix 2: 2019 IPS Results by Airline and Aircraft Type	

*This report and all matters referred to herein remain confidential to the Client unless specifically authorised otherwise, when reproduction and/or publication is verbatim and without abridgement. This report may not be reproduced in whole or in part or relied upon in any way by any third party for any purpose whatsoever without the express written authorisation of Bickerdike Allen Partners LLP. If any third party whatsoever comes into possession of this report and/or any underlying data or drawings then they rely on it entirely at their own risk and Bickerdike Allen Partners LLP accepts no duty or responsibility in negligence or otherwise to any such third party.*

*Bickerdike Allen Partners LLP hereby grant permission for the use of this report by the client body and its agents in the realisation of the subject development, including submission of the report to the design team, contractor and sub-contractors, relevant building control authority, relevant local planning authority and for publication on its website.*

## **1.0 INTRODUCTION**

One of the noise control measures at London City Airport (LCA) is the Incentives and Penalties Scheme (IPS), which is part of the wider Noise Management and Mitigation Strategy (NOMMS).

The IPS monitors the noise levels produced by departing aircraft, and if the noise level is above or below certain thresholds then airlines accrue or lose credit points. The noisiest aircraft can also incur a financial penalty.

As part of the IPS, there is a requirement to produce an Annual Community and Airline Report. The relevant text from the IPS is as follows:

*“An annual report shall be produced on 31 March describing aircraft/airline performance with regard to noise monitoring and flight track keeping in terms of good and poor performers and league tables, for the period relating to the immediately preceding calendar year. The most improved airline will be awarded with a partnership delivering the Community Projects Fund with LCA in the following year. The report will be submitted to the airlines, LBN and the LCACC and will also be included in the APR.”*

This report presents the information to satisfy the IPS requirements.

## 2.0 INCENTIVES AND PENALTIES SCHEME (IPS)

### 2.1 Scheme Details

The IPS makes use of LCA's Noise and Track Keeping (NTK) system, in particular the fixed noise monitors, to monitor departure noise levels. The IPS focuses on incentivising quieter operation of aircraft on departure and penalising noisy departures.

The IPS works as follows:

- The sideline noise level for a given departure is defined as the arithmetic average of the  $L_{Amax,s}$  noise level measured at the relevant pair of NMTs (NMTs 1 and 2 for runway 27 departures, and NMTs 3 and 4 for runway 09 departures).
- The flyover noise level for a given departure is defined as the  $L_{Amax,s}$  noise level measured at the relevant NMT (NMT 5 for runway 27 departures, and NMT 6 for runway 09 departures).
- The measured noise levels are compared with the relevant thresholds.
- If the Fixed Penalty Limit is exceeded, the airline responsible is fined £600<sup>1</sup> per dB(A) of exceedance, and one credit point is removed from the airline's credit account.
- If the Fixed Penalty Limit is not exceeded, but the Credit Removal Threshold is exceeded, one credit point is removed from the airline's credit account.
- If the Credit Award Threshold is not exceeded, one credit point is added to the airline's credit account.
- An airline may avoid a fixed penalty or credit removal for a particular flight, if they are able to provide a reasonable explanation for the noisy departure. Each exceedance event is considered on a case by case basis to establish whether or not a penalty or credit removal is applied.
- An airline's credit account is reset to zero at the beginning of each calendar year.

The fines for exceeding the Fixed Penalty Limit are paid into London City Airport's Community Fund, and are added to the annual contribution of £75,000 provided to the fund by LCA. The most improved airline each year, as determined by this review, partners the airport in delivering the fund.

---

<sup>1</sup> Fines were not payable prior to 1st November 2018

## 2.2 London City Airport's Community Fund

The Community Fund grant provides a financial boost to local groups, such as mental health charities, disability groups, community gardens and sports teams as well as those providing family support, mentoring programmes and employability training. A total of more than £75,000 worth of grants have been awarded in 2019, supporting a broad range of initiatives that enable positive and significant change within and across diverse communities in East London.

The airport has received more than 200 applications in 2019 since announcing the Fund in May. The grantees were selected by a judging panel that includes representatives from the airport, local authorities and FlyBe, which joined the Fund's board of trustees following the airline's leading noise performance in 2018. They reported a number of common themes across all the recipients, that they either:

- build stronger, safer and healthier communities;
- create more sustainable and greener communities;
- raise aspirations of East Londoners; or
- create pathways into employment.

The Community Fund advertised its launch of the fund, see Figure 1, in local newspapers including, Newham & Stratford Recorder, Barking and Dagenham Post, Wharf Life and South London press & Mercury Paper. The fund was also advertised to local MP's and councillors to cascade the information and encourage charities and not-for profit organisations to apply.

**LONDON CITY AIRPORT  
COMMUNITY  
FUND**

To support local charities and organisations that represent inclusive and diverse communities across East London.

**£75,000**

**Funding Criteria**  
Application is open to charities and not-for-profit organisations.  
To qualify your project needs fit within the following categories:

- Building stronger, safer and healthier communities
- Creating more sustainable and greener communities
- Raising aspirations of East Londoners
- Creating pathways into employment

**Eligibility**  
See below the eligible locations:

Barking & Dagenham | Bexley | Epping Forest District Council | Greenwich | Hackney | Havering | Newham | Lambeth | Lewisham | Redbridge | Southwark | Tower Hamlets | Waltham Forest

**Apply Now**  
To apply, please fill out the application form on our website:  
[www.londoncityairport.com/corporate/responsible-growth/community-fund](http://www.londoncityairport.com/corporate/responsible-growth/community-fund)  
Contact us for more information:  
[CommunityFund@londoncityairport.com](mailto:CommunityFund@londoncityairport.com)  
For Terms and Conditions and submission deadlines, please visit our website.

**LONDON CITY AIRPORT**

**Figure 1: Example of Community Fund Advert**



The Community Fund held two rounds of grants, with the first being awarded in September and the second in December 2019. In order to decide the grantees trustees board meetings were held applicants were selected to be awarded a grant of up to £3,000. A robust scoring system was used in order to score the applications, based on the funding criteria they applied for, the number of beneficiaries for the amount requested along with how the local community will benefit from the fund. Taking all this into consideration trustees selected projects which will benefit the local community and enable positive impact. Details of the selected projects and the grants made are given in Appendix 1.

## 2.3 Scheme Operation

The IPS was first implemented on 18 August 2017 on a provisional basis. Credits were awarded or removed but the fixed financial penalties were not payable until the review after 1 year of operation had been carried out. The provisional penalty and credit limits that were initially used are set out in Table 1.

Threshold Description	Aircraft Category	Runway 09		Runway 27	
		Sideline Noise Level	Flyover Noise Level	Sideline Noise Level	Flyover Noise Level
Fixed Penalty Limit	Turbofans	90	84	93	85
	Turboprops	82	78	85	80
Credit Removal Threshold	Turbofans	-	81	-	82
	Turboprops	-	75	-	77
Credit Award Threshold	Turbofans	-	73	-	72
	Turboprops	-	69	-	68

N.B. All noise limits are expressed as dB  $L_{Amax,s}$

**Table 1: IPS Provisional Fixed Penalty Noise Limits and Credit Thresholds**

Following the review of the scheme in 2018, the fixed penalty limits for the sideline NMTs (1-4) were removed, the fixed penalty limits for both turbofan and turboprop aircraft at NMT 5 were lowered (i.e. made more stringent) and the credit award thresholds for turboprop aircraft at NMTs 5 and 6 were lowered (i.e. made more stringent). The current penalty and credit limits (noise levels) are set out in Table 2. These have applied from 1<sup>st</sup> October 2018, although fixed penalties were not payable until 1<sup>st</sup> November 2018 as a 1-month notice period was given to airlines.

Threshold Description	Aircraft Category	Flyover Noise Level, dB L <sub>ASmax</sub>	
		Runway 09	Runway 27
Fixed Penalty Limit	Turbofans	84	84 <sup>1</sup>
	Turboprops	78	78
Credit Removal Threshold	Turbofans	81	82
	Turboprops	75	77
Credit Award Threshold	Turbofans	73	72
	Turboprops	66.5	65.5

<sup>1</sup> If aircraft is between 100m and 300m north of the extended runway centreline, a 0.2 dB reduction is applied

**Table 2: IPS Fixed Penalty Noise Limits and Credit Thresholds – (1 October 2018 to Present)**

## 2.4 League Table of Credits

The number of residual credits is given for the most commonly operating airlines (those with at least one departure per week on average) in Table 3. These are based on the thresholds that were in operation at the time of the individual flights; i.e. those given in Table 1 for the first three quarters of 2018 and those given in Table 2 for the fourth quarter of 2018 and the entirety of 2019. Full details of the fixed penalties, credit awards and credit removals for 2019 are given by airline in Appendix 2. Many airlines have fewer residual credits in 2019 than 2018 as the 2019 limit are more stringent.

<b>Airline</b>	<b>Residual Credits 2019</b>	<b>Residual Credits 2018</b>	<b>Residual Credits Difference 2019 - 2018</b>
KLM Royal Dutch Airlines	145	117	28
Shell Aircraft	85	74	11
Swiss	497	494	3
Aerowest	40	38	2
TAP Portugal	28	28	0
GlobeAir	96	99	-3
Air Hamburg Private Jets	48	57	-9
Alitalia	150	171	-21
Lufthansa	66	96	-30
Aer Lingus	-62	-26	-36
British Airways	35	72	-37
Sun-Air of Scandinavia	180	221	-41
NetJets Europe	595	651	-56
Blue Islands	6	71	-65
Eastern Airways	8	119	-111
Xclusive Jet Charter Ltd	47	167	-120
BA Cityflyer	142	428	-286
Luxair	56	746	-690
Flybe	-2	793	-795
LOT Polish Airlines <sup>[1]</sup>	38	-	-
Air Antwerp <sup>[1]</sup>	185	-	-

<sup>[1]</sup> Airline did not operate at LCA in 2018 and therefore its improvement cannot be assessed.

### **Table 3: 2019 Residual Credits Ranking**

The most improved airline has been determined by comparing the total residual credits in the two years. Therefore, KLM Royal Dutch Airlines will partner LCA in delivering the Community Fund for 2019.

## **2.5 Flight Track Keeping**

The NTK system is permanently linked to the airport's radar feed, which is provided by the local Air Traffic Control (ATC) centre. Aircraft flight tracks are correlated with flight information and noise events. Based around this information, the airport have introduced a web-based system (known as TRAVIS<sup>2</sup>) to share data from the flight track monitoring system with the public.

LCA do not currently operate noise preferential routes such as those that are in place at some other airports. Analysis is carried out to identify any aircraft which appear to be obviously 'off track'. This analysis is reported quarterly and in the Annual Performance Report (APR).

There are only a very small number of aircraft which are found to be 'off track' and therefore it is not possible to rank airlines by track-keeping performance.

**Nick Williams**  
for Bickerdike Allen Partners LLP

**David Charles**  
Partner

---

<sup>2</sup> <https://travisly.topsonic.aero/>

## APPENDIX 1

### LONDON CITY AIRPORT COMMUNITY FUND GRANTS 2019

### London City Airport Community Fund

30 organisations from 10 East London local boroughs were awarded a grant between £300 to £3000 in 2019.

### **First tranche of grants - September 2019**

<b>Amount awarded</b>	<b>Name of the organisation</b>	<b>Borough supporting</b>	<b>Category</b>	<b>Funding Criteria</b>
£ 2,660	Canaan Project	Tower Hamlets	Raising aspirations	building stronger, safer, healthier communities
£ 2,720	Dalmain Athletic Girls Football Club	Lewisham	Employability	creating pathways into employment
£ 2,000	Free Your Mind cic	Barking & Dagenham, Epping Forest	Mental Health & wellbeing	building stronger, safer, healthier communities
£ 3,000	Hackney Association Youth Club	Hackney	Employability	creating pathways into employment
£ 2,700	Havering Association for People with Disabilities	Havering	People with Reduced Mobility (PRM)	building stronger, safer, healthier communities
£ 2,475	Healthy Living Projects Limited	Redbridge	Poverty	building stronger, safer, healthier communities

£ 3,000	Inspire! Education Business Partnership	Waltham Forest	Employability	creating pathways into employment
£ 3,000	Kings Cross <del>Steelers</del> RFC	Newham	LGBT	building stronger, safer, healthier communities
£ 1,615	Lambeth Libraries	Lambeth	Poverty & employability	creating pathways into employment
£ 1,500	Mind in Tower Hamlet & Newham	Greenwich, Newham, Tower Hamlets	Mental Health & wellbeing	building stronger, safer, healthier communities
£ 2,475	Samaritans - Redbridge Branch	Barking & Dagenham, Epping Forest, Newham, Redbridge	Mental Health & wellbeing	building stronger, safer, healthier communities
£ 3,000	Samuel Montagu Youth Centre	Greenwich	Sports	building stronger, safer, healthier communities
£ 2,000	Thames View Tenants & Residents Association	Barking & Dagenham	Environment	creating more sustainable and greener communities
£ 3,000	Thames Ward Community Project	Barking & Dagenham	Environment	creating more sustainable and greener communities
£ 3,000	The Magpie Project	Newham	Poverty	building stronger, safer, healthier communities
£ 3,000	The Poplar Partnership	Tower Hamlets	Education	raising aspirations of East Londoners
<b>£ 41,145</b>	<b>16 organisations</b>			

## Second tranche of grants - December 2019

Amount awarded	Name of the organisation.	Boroughs Supporting	Category	Funding Criteria
£ 3,000	Aston-Mansfield	Epping Forest, Greenwich, Newham	Youth Project	raising aspirations of East Londoners
£ 1,200	Blind in Business	Open to all local boroughs with a focus on Waltham Forest, Tower Hamlets, Newham	Employability skills and pathways awareness	creating pathways into employment
£ 2,500	Chats Palace	Hackney	Mental Health and Well-being	building stronger, safer, healthier communities
£ 3,000	Clapton Common Boys Club	Hackney	Mentoring programme for NEETs	raising aspirations of East Londoners
£ 2,860	Community Food Enterprise Limited	Barking & Dagenham, Hackney, Havering, Redbridge, Tower Hamlets, Waltham Forest	Food Poverty	building stronger, safer, healthier communities



£ 2,918	Excellent Tutoring Resource ELLA	Barking & Dagenham	Training & Employability	creating pathways into employment
£ 1,225	Home-Start Havering	Havering	Early support for families	building stronger, safer, healthier communities
£ 2,661	Just Enough Global	Newham	Knife Crime awareness	building stronger, safer, healthier communities
£ 1,920	Maggie Keswick Jencks Cancer Caring Centres Trust (Maggie's <u>Barts</u> )	Barking & Dagenham, Hackney, Havering, Redbridge, Tower Hamlets, Waltham Forest	Health	building stronger, safer, healthier communities
£ 2,739	One Place East	Hackney	PRM (People with Reduced Mobility) and Mental health	building stronger, safer, healthier communities
£ 3,000	Royal Docks Learning & Activity Centre	Newham	Environment	creating more sustainable and greener communities
£ 3,000	<u>UpRising</u> Leadership	Barking & Dagenham, Greenwich, Hackney, Lambeth, Tower Hamlets	Employability	creating pathways into employment
£ 2,500	Young Lewisham Project	Greenwich, Lambeth, Lewisham, Southwark	Employability skills for at risk	creating pathways into employment
£ 3,000	Young stars elite U7	Tower Hamlets	Sports	building stronger, safer, healthier communities
<b>£ 35,523</b>	<b>14 Organisations</b>			

## APPENDIX 2

### 2019 IPS RESULTS BY AIRLINE AND AIRCRAFT TYPE

Table 4 summarises the number of flights that incurred fixed penalties, credit removals and credit awards in 2019, by airline and aircraft type. Additionally, the total value of fixed penalties which were accrued and the residual number of credits are presented.

<b>Airline Code</b>	<b>Aircraft Code</b>	<b>Fixed Penalties (# aircraft)</b>	<b>Fixed Penalties (total value)</b>	<b># Credits Removed</b>	<b># Credits Awarded</b>	<b>Residual Credits</b>
AAB	C25A	0	£0	0	1	1
AAB	C25C	0	£0	0	2	2
AAB	C56X	0	£0	0	1	1
ABP	E135	0	£0	0	11	11
ADN	FA7X	0	£0	0	3	3
ADN	LJ45	0	£0	0	3	3
AHO	C560	0	£0	0	4	4
AHO	C56X	0	£0	0	40	40
AHO	CNJ	0	£0	0	3	3
AHO	FA7X	0	£0	0	1	1
AKK	F900	0	£0	0	1	1
AKK	FA7X	0	£0	0	2	2
AOJ	C25A	0	£0	0	1	1
AOJ	FA7X	0	£0	0	1	1
ASJ	C510	0	£0	0	8	8
ASJ	C680	0	£0	0	1	1
ASJ	CNJ	0	£0	0	3	3
ATW	F50	0	£0	0	185	185
AWU	C25A	0	£0	0	13	13
AWU	C525	0	£0	0	6	6
AZ8	E190	0	£0	0	1	1
AZA	E190	0	£0	1	151	150
BA9	A318	0	£0	0	1	1
BA9	B462	0	£0	0	1	1
BAA	GL7T	0	£0	0	1	1
BAW	A318	0	£0	0	35	35

<b>Airline Code</b>	<b>Aircraft Code</b>	<b>Fixed Penalties (# aircraft)</b>	<b>Fixed Penalties (total value)</b>	<b># Credits Removed</b>	<b># Credits Awarded</b>	<b>Residual Credits</b>
BBA	GL7T	0	£0	0	1	1
BCI	AT72	0	£0	2	0	-2
BCI	AT75	0	£0	0	8	8
BEE	B462	0	£0	0	2	2
BEE	DH4	0	£0	4	1	-3
BEE	DH8D	1	£600	33	29	-5
BEE	E190	0	£0	1	5	4
BFD	F2TH	0	£0	0	1	1
BLJ	C56X	0	£0	0	2	2
CAZ	DF3	0	£0	0	1	1
CAZ	F2TH	0	£0	0	4	4
CAZ	F2TX	0	£0	0	2	2
CAZ	FA7X	0	£0	0	14	14
CAZ	H25B	0	£0	0	2	2
CFE	B462	0	£0	1	9	8
CFE	E170	0	£0	9	14	5
CFE	E190	0	£0	8	128	120
CFE	RJ85	0	£0	6	0	-6
CFE	SB20	0	£0	3	18	15
CGL	GL7T	0	£0	0	1	1
CLF	C25A	0	£0	0	7	7
CLF	E135	0	£0	0	1	1
CLF	F2TX	0	£0	0	2	2
CSD	GLEX	0	£0	0	1	1
CTM	FA7X	0	£0	0	1	1
DAG	FA7X	0	£0	0	1	1
DAH	DA90	0	£0	0	4	4
DBE	F2TH	0	£0	0	8	8
DBO	DF2	0	£0	0	1	1

<b>Airline Code</b>	<b>Aircraft Code</b>	<b>Fixed Penalties (# aircraft)</b>	<b>Fixed Penalties (total value)</b>	<b># Credits Removed</b>	<b># Credits Awarded</b>	<b>Residual Credits</b>
DBO	F2TH	0	£0	0	9	9
DCA	C56X	0	£0	0	12	12
DCA	C680	0	£0	0	28	28
DCD	CNJ	0	£0	0	1	1
DCE	C25C	0	£0	0	1	1
DCE	C680	0	£0	0	1	1
DCH	C680	0	£0	0	1	1
DCM	CNJ	0	£0	0	1	1
DCS	C56X	0	£0	0	6	6
DGX	FA8X	0	£0	0	2	2
DIG	C25A	0	£0	0	1	1
DLH	E190	0	£0	0	66	66
DSO	FA7X	0	£0	0	3	3
ECC	GLEX	0	£0	0	1	1
EDC	C56X	0	£0	0	2	2
EDG	G280	0	£0	0	3	3
EFD	C25A	0	£0	0	6	6
EFD	C25C	0	£0	0	2	2
EFD	C680	0	£0	0	2	2
EFD	CNJ	0	£0	0	2	2
EIN	RJ85	0	£0	64	2	-62
ELJ	C25A	0	£0	0	3	3
ELJ	C56X	0	£0	0	4	4
ENZ	B462	0	£0	0	1	1
ETI	C25B	0	£0	0	1	1
ETI	CJ3	0	£0	0	2	2
ETI	CNJ	0	£0	0	1	1
EUW	C680	0	£0	0	6	6
EZE	SB20	0	£0	1	9	8

<b>Airline Code</b>	<b>Aircraft Code</b>	<b>Fixed Penalties (# aircraft)</b>	<b>Fixed Penalties (total value)</b>	<b># Credits Removed</b>	<b># Credits Awarded</b>	<b>Residual Credits</b>
FGP	FA7X	0	£0	0	1	1
FGS	C25B	0	£0	0	1	1
FHA	F2TH	0	£0	0	2	2
FHF	GLEX	0	£0	0	4	4
FHL	DA50	0	£0	0	1	1
FHL	DF3	0	£0	0	1	1
FHS	CNJ	0	£0	0	1	1
FHS	FA7X	0	£0	0	1	1
FYG	CCX	0	£0	0	1	1
FYG	CL65	0	£0	0	2	2
FYG	FA7X	0	£0	0	2	2
FYG	GLEX	0	£0	0	3	3
FYL	C25B	0	£0	0	1	1
GAC	C25A	0	£0	0	3	3
GAC	C510	0	£0	0	92	92
GAC	CNJ	0	£0	0	1	1
GDK	C56X	0	£0	0	1	1
GDK	C680	0	£0	0	1	1
GGA	C56X	0	£0	0	1	1
GLJ	GLEX	0	£0	0	1	1
GRN	CL60	0	£0	0	1	1
GSI	C56X	0	£0	0	1	1
GSP	C550	0	£0	0	1	1
GXI	DF3	0	£0	0	1	1
GXI	FA8X	0	£0	0	30	30
HBJ	CL60	0	£0	0	4	4
HBJ	CL65	0	£0	0	1	1
HBJ	FA7X	0	£0	0	5	5
HBJ	FA8X	0	£0	0	1	1

<b>Airline Code</b>	<b>Aircraft Code</b>	<b>Fixed Penalties (# aircraft)</b>	<b>Fixed Penalties (total value)</b>	<b># Credits Removed</b>	<b># Credits Awarded</b>	<b>Residual Credits</b>
HBJ	GLEX	0	£0	0	2	2
HHN	C680	0	£0	0	2	2
HTM	C56X	0	£0	0	6	6
IJM	GLEX	0	£0	0	3	3
IWA	C680	0	£0	0	1	1
IXR	C525	0	£0	0	1	1
JAR	C550	0	£0	0	2	2
JAS	DA90	0	£0	0	1	1
JAS	FA7X	0	£0	0	1	1
JCT	F900	0	£0	0	1	1
JDI	C25A	0	£0	0	1	1
JET	C56X	0	£0	0	4	4
JFA	C25B	0	£0	0	8	8
JSY	C25A	0	£0	0	1	1
KBD	E55P	0	£0	0	5	5
KDB	E55P	0	£0	0	1	1
KL9	E190	0	£0	0	1	1
KLM	E190	0	£0	7	152	145
KOC	FA8X	0	£0	0	1	1
KRH	C56X	0	£0	0	6	6
KRH	E135	0	£0	0	4	4
LEA	C25B	0	£0	0	6	6
LEA	DA90	0	£0	0	1	1
LEA	FA7X	0	£0	0	2	2
LEA	H25B	0	£0	0	1	1
LGL	DH8D	0	£0	3	59	56
LMJ	GLEX	0	£0	0	5	5
LNA	DA90	0	£0	0	1	1
LNK	C56X	0	£0	0	7	7

<b>Airline Code</b>	<b>Aircraft Code</b>	<b>Fixed Penalties (# aircraft)</b>	<b>Fixed Penalties (total value)</b>	<b># Credits Removed</b>	<b># Credits Awarded</b>	<b>Residual Credits</b>
LNK	E135	0	£0	0	7	7
LOT	E190	0	£0	0	38	38
LX5	BCS1	0	£0	0	1	1
LXG	E55P	0	£0	0	1	1
MAB	CL60	0	£0	0	1	1
MGS	DA90	0	£0	0	1	1
MIN	G280	0	£0	0	4	4
MJF	E135	0	£0	0	3	3
MMD	DF3	0	£0	0	1	1
MMD	F2TH	0	£0	0	4	4
MMD	FA7X	0	£0	0	3	3
MMD	FA8X	0	£0	0	4	4
N10	FA7X	0	£0	0	1	1
N14	GLEK	0	£0	0	6	6
N28	G280	0	£0	0	1	1
N30	GLEK	0	£0	0	2	2
N47	DA90	0	£0	0	2	2
N52	E190	0	£0	0	1	1
N77	CL60	0	£0	0	3	3
N78	F2TX	0	£0	0	2	2
N84	F2TH	0	£0	0	2	2
N88	C680	0	£0	0	3	3
N90	C25C	0	£0	0	1	1
N95	GL5T	0	£0	0	1	1
NJE	C56X	0	£0	0	237	237
NJE	C680	0	£0	0	63	63
NJE	C68A	0	£0	0	122	122
NJE	CJ8	0	£0	0	6	6
NJE	E55P	0	£0	0	124	124



<b>Airline Code</b>	<b>Aircraft Code</b>	<b>Fixed Penalties (# aircraft)</b>	<b>Fixed Penalties (total value)</b>	<b># Credits Removed</b>	<b># Credits Awarded</b>	<b>Residual Credits</b>
NJE	GL5T	0	£0	0	1	1
NJE	GLEX	0	£0	0	22	22
NJE	H25B	0	£0	0	20	20
OAW	E190	0	£0	0	1	1
OEF	C25A	0	£0	0	1	1
OEF	C510	0	£0	0	2	2
OEF	CNJ	0	£0	0	2	2
OEG	C56X	0	£0	0	1	1
OKR	G280	0	£0	0	1	1
OKS	E135	0	£0	0	1	1
OML	C680	0	£0	0	1	1
OOA	C25A	0	£0	0	2	2
OOG	CNJ	0	£0	0	1	1
OOG	DF3	0	£0	0	1	1
OOG	F2TX	0	£0	0	11	11
OOH	FA8X	0	£0	0	1	1
OON	E545	0	£0	0	2	2
OOS	C25C	0	£0	0	1	1
OOS	C56X	0	£0	0	1	1
OOX	C56X	0	£0	0	1	1
PHH	CL60	0	£0	0	2	2
PHJ	F2TH	0	£0	0	8	8
PHT	CNJ	0	£0	0	1	1
PHW	F2TH	0	£0	0	6	6
RBB	FA7X	0	£0	0	3	3
REN	C56X	0	£0	0	2	2
REN	C680	0	£0	0	1	1
RRR	B461	0	£0	0	2	2
SER	C56X	0	£0	0	1	1

<b>Airline Code</b>	<b>Aircraft Code</b>	<b>Fixed Penalties (# aircraft)</b>	<b>Fixed Penalties (total value)</b>	<b># Credits Removed</b>	<b># Credits Awarded</b>	<b>Residual Credits</b>
SHE	DF3	0	£0	0	7	7
SHE	FA7X	0	£0	0	67	67
SHE	FA8X	0	£0	0	11	11
SIO	DF3	0	£0	0	1	1
SNX	E550	0	£0	0	1	1
SPG	C25A	0	£0	0	1	1
STK	E190	0	£0	0	2	2
STQ	C25A	0	£0	0	1	1
STQ	E55P	0	£0	0	1	1
SUA	C56X	0	£0	0	4	4
SUI	DA90	0	£0	0	1	1
SUS	FRJ	0	£0	0	18	18
SUS	J328	0	£0	0	162	162
SVW	DF3	0	£0	0	1	1
SVW	F2TH	0	£0	0	3	3
SWR	221	0	£0	0	47	47
SWR	A221	0	£0	0	16	16
SWR	BCS1	0	£0	0	402	402
SWR	CS1	0	£0	0	1	1
SWR	E190	0	£0	0	31	31
SXN	C510	0	£0	0	7	7
SXN	E550	0	£0	0	7	7
TAP	DH8D	0	£0	1	0	-1
TAP	E190	0	£0	2	31	29
TVS	C680	0	£0	0	2	2
ULC	CNJ	0	£0	0	1	1
VPC	CL35	0	£0	0	3	3
VQB	FA7X	0	£0	0	1	1
WGT	DF3	0	£0	0	1	1

<b>Airline Code</b>	<b>Aircraft Code</b>	<b>Fixed Penalties (# aircraft)</b>	<b>Fixed Penalties (total value)</b>	<b># Credits Removed</b>	<b># Credits Awarded</b>	<b>Residual Credits</b>
WGT	FA7X	0	£0	0	5	5
WGT	FA8X	0	£0	0	4	4
WTG	FA7X	0	£0	0	3	3
XGO	P180	1	£600	3	0	-4
XJC	C550	0	£0	0	43	43
XJC	H25B	0	£0	0	4	4
XRO	C680	0	£0	0	3	3
XRO	DA90	0	£0	0	2	2
XRO	F900	0	£0	0	2	2

**Table 4: 2019 IPS results by airline and aircraft type**

# Annual Performance Report 2019

(Compliance with  
planning permission)



## Annex 6 Air Quality Action Plan Progress Update

Air Quality Action Plan (2017-2019)	Indicative Timescale	Status update
Measure 1: London City Airport will continue to routinely record the availability of FEGP on all stands where it is has been installed, and the time taken to effect repairs. It will also continue to record the use of FEGP within the online portal and document any contraventions of Airfield Operating Instruction AOI 07. The Standard Terms and Conditions will be amended to require mandatory use of FEGP on any Stand where it is available, as and when FEGP availability is increased.	June each year	Use of FEGP where available is mandatory, and no contraventions to this were recorded in 2019. Eight faults were recorded during the year relating failure of the FEGP supply, all of which were rectified within 24 hours. A further 79 faults were reported with the Powervamp units.
Measure 2: London City Airport will monitor the use of APU in accordance with the relevant Airfield Operating Instruction AOI 07, and will continue to record APU use via the Airport's "Qlickview" online reporting tool. Any contraventions of the Airfield Operating Instructions, and any future requirements within the forthcoming APU Strategy, will be documented.	June each year	In place. 1031 aircraft requested use of APUs during 2019. 10 aircraft were recorded as being in breach of the operating instruction, and this was raised with the airlines accordingly.
Measure 3: With the continued procurement of Fixed Electrical Ground Power (FEGP) reliance on MGPUs will be phased out completely by December 2020 in accordance with the requirements of Condition 46 of the CADP1 Conditions. Prior to this date, the early decommissioning of the older MGPUs will minimise emissions; all remaining MGPUs with Stage II emissions will be decommissioned by March 2017.	March 2017	All MGPUs with stage II emissions have been decommissioned. The installation of FEGP on the remaining stands will be completed as part of CADP within the agreed timescales. eMGPUs have been agreed for the Jet Centre.
Measure 4: London City Airport will review the outcomes of the Ground Engine Running Strategy within the quarterly reports and will prepare a report for submission to LBN on the air quality implications where ground running times exceed agreed targets.	Within 2 months of GERS quarterly reports	There was no exceedance of limits. This will be continually monitored.
Measure 5: London City Airport will work with the major airlines to explore the potential to introduce "Engine Out Taxi" (EOT) procedures i.e. single engine taxiing. A feasibility study will be submitted to LBN for approval. Pending the outcome of the feasibility study, a Code of Practice to encourage EOT will be introduced at a later date.	Sept 2017 (feasibility study) Dec 2017 (COP)	Single Engine Taxi assessment has been complete and may occur 20% of the time however there are safety concerns surrounding the operation of this however hence why it cannot be a fundamental change. Reduced thrust has also been discussed with the airlines but not considered to be possible at LCY due to the short taxiing times. This will be revisited once the new taxiways for CADP have been constructed.

Air Quality Action Plan (2017-2019)	Indicative Timescale	Status update
Measure 6: London City Airport will undertake a feasibility study to understand the potential of using Electric Taxiing Systems at LCA, without affecting time performance. A feasibility study will be submitted to LBN for approval, and will include, if practicable, timescales for implementation.	Dec-18	Completed November 2018. No suitable technology is currently available. This measure will be retained for consideration again in 2020.
Measure 7: London City Airport will review the outcomes of the Ground Engine Running, Testing and Maintenance (GERT&M) Strategy and will advise on the air quality implications, specifically with regard to proposals for relocation of the engine ground run positions during CADP1 construction.	Within 2 months of GERT&M reports	A report will be completed within 2 months of the strategy review being submitted.
Measure 8: London City Airport will continue to work with operators at the Airport (in accordance with AOI 12) to increase the percentage of London Low Emissions Zone (LLEZ) compliant vehicles year on year, with the target of achieving 100% compliance with the LLEZ by December 2017. If the ULEZ is expanded to encompass London City Airport, LCA will review AOI 12 with the intent of achieving ULEZ compliance for all airside vehicles as soon as December 2020.	Dec 17	All vehicles are compliant with LLEZ, with the exception of 1 fire appliance which is only used in exceptional circumstances.  A strategy for upgrading the fleet to comply with the ULEZ requirements has been developed and shared with LBN.
Measure 9: London City Airport will continue to enforce the requirement in AOI 12 that all new vehicles issued with a Airside Vehicle Permit (i.e. not renewal applications for existing AVPs), comply with the latest vehicle emissions standards for road vehicles (Euro Standards) defined as the date by which the Euro Standard comes into force for registration and the sale of new vehicles.	June each year	In effect and internally audited annually.
Measure 10: London City Airport will continue to undertake routine annual, and periodic, random emissions testing for airside vehicles. The results of the testing will be reported to LBN on an annual basis.	June each year	15 vehicles have been tested since the last APR was published. No issues were raised as a result of the test.
Measure 11: London City Airport will undertake a feasibility study for the procurement of low emission vehicles (hybrid or electric) to replace the existing fleet, together with a timescale for subsequent implementation. The feasibility report will be submitted to LBN for approval.	Dec 2017	Submitted December 2018 following agreement with LBN to postpone submission. The consideration of hybrid or electric alternatives is now being considered through the procurement process.

Air Quality Action Plan (2017-2019)	Indicative Timescale	Status update
Measure 12: London City Airport will investigate and implement provisions to reduce idling black cabs. This will involve liaison through the Airport's Transport Forum with the relevant service providers to understand the causes for such instances and implementation, if necessary, of methods to reduce such impacts occurring.	Dec 2017	A black cab emissions study was submitted to LBN in July 2017 and approved October 2018.
Measure 13: London City Airport will continue to review and update the website to provide clear, concise information to the local and wider community on the performance of the Air Quality Management Strategy.	June each year	The website has been reviewed regularly and updated throughout 2019. Continuous PM2.5 data is now displayed.
Measure 14: London City Airport will continue to undertake, on a two year basis, a RAMP employee air quality monitoring assessment with direct, individual recording apparatus.	April 2017	Completed in 2019 and shared with LBN. Levels of pollutants identified were well below workplace exposure levels.
Measure 15: London City Airport will publish an article relating to air quality and airport operations at least once per year in the airport staff newsletter "Airport Life".	June each year	Article was published in the summer 2019 edition (now called Inside E16) as part of a sustainability double-page.

# Annual Performance Report 2019

(Compliance with  
planning permission)



## Annex 7 Annual Air Quality Monitoring Report





# **London City Airport Air Quality Monitoring Strategy: Annual Report 2019**

---

March 2020



Experts in air quality  
management & assessment

## Document Control

<b>Client</b>	London City Airport	<b>Principal Contact</b>	Tessa Simpson
---------------	---------------------	--------------------------	---------------

<b>Job Number</b>	J3621A
-------------------	--------

<b>Report Prepared By:</b>	Dr Joshua Nunn and David Bailey
----------------------------	---------------------------------

### Document Status and Review Schedule

Report No.	Date	Status	Reviewed by
3621A/4/F1	30 <sup>th</sup> March 2020	Final Report	Stephen Moorcroft

This report has been prepared by Air Quality Consultants Ltd on behalf of the Client, taking into account the agreed scope of works. Unless otherwise agreed, this document and all other Intellectual Property Rights remain the property of Air Quality Consultants Ltd.

In preparing this report, Air Quality Consultants Ltd has exercised all reasonable skill and care, taking into account the objectives and the agreed scope of works. Air Quality Consultants Ltd does not accept any liability in negligence for any matters arising outside of the agreed scope of works. The Company operates a formal Quality Management System, which is certified to ISO 9001:2015, and a formal Environmental Management System, certified to ISO 14001:2015.

When issued in electronic format, Air Quality Consultants Ltd does not accept any responsibility for any unauthorised changes made by others.

When printed by Air Quality Consultants Ltd, this report will be on Evolve Office, 100% Recycled paper.



**Air Quality Consultants Ltd**  
**23 Coldharbour Road, Bristol BS6 7JT Tel: 0117 974 1086**  
**119 Marylebone Road, London NW1 5PU Tel: 020 3873 4780**  
**aqc@aqconsultants.co.uk**

Registered Office: 23 Coldharbour Road, Bristol BS6 7JT  
 Companies House Registration No: 2814570

## Contents

Executive Summary.....	2
1 Introduction.....	4
2 Assessment Criteria .....	5
3 Monitoring Methodology and Results.....	7
4 Data Analyses .....	19
5 References .....	27
6 Glossary.....	28
A1 Appendix 1 – Nitrogen Oxides Results .....	29
A2 Appendix 2 – Diffusion Tube Data .....	30
A3 Appendix 3 – Bias Adjustment Factor for Diffusion Tubes .....	31
A4 Appendix 4 – Diffusion Tube Precision .....	33
A5 Appendix 5 – Detailed Trend Analysis .....	35

## Executive Summary

This document represents the 2019 Annual Report for the Air Quality Monitoring Strategy (AQMS) that is operated by Air Quality Consultants Ltd. on behalf of London City Airport. This programme measures concentrations of nitrogen dioxide (NO<sub>2</sub>) and fine particles (the so called PM<sub>10</sub> and PM<sub>2.5</sub> fractions, i.e. particles that are less than 10 and 2.5 micrometres in diameter, respectively).

Monitoring is currently carried out at three automatic monitoring stations. One is situated on the roof of City Aviation House (LCA-CAH), one is to the north of Royal Albert Dock adjacent to the Newham Dockside building (LCA-ND), and one is adjacent to King George V House (LCA-KGV). These automatic sites are supplemented by a network of passive monitoring devices (nitrogen dioxide diffusion tubes) located at a further 16 sites in and around the Airport boundary.

The Government has set a number of air quality objectives to protect human health. These are based on monitoring carried out over the period of a calendar year.

In some cases, these objectives refer to average concentrations of pollutants measured over the calendar year (the “annual mean”); in other cases they refer to the number of hours or days on which a specified pollutant concentration should not be exceeded (for example, no more than 35 days in each calendar year on which PM<sub>10</sub> concentrations exceed 50 µg/m<sup>3</sup>, and no more than 18 hours in each calendar year on which nitrogen dioxide concentrations exceed 200 µg/m<sup>3</sup>).

In addition to the objectives, the Government has established a set of descriptors for the 1-hour mean concentrations of nitrogen dioxide and 24-hour mean concentrations of PM<sub>10</sub>. Air quality is defined by these descriptors as being Low, Moderate, High and Very High.

Pollution concentrations measured in and around the Airport are associated with a wide range of sources at the local, regional, national and international scales. On occasions when pollution levels rise, these higher levels are often observed across the whole of London as a “regional pollution episode”. To assist with the interpretation of the results, pollution levels measured at other London monitoring sites are included in this report.

### Nitrogen Dioxide

The 2019 annual mean nitrogen dioxide concentration measured at the automatic station on the roof of City Aviation House was 29.7 µg/m<sup>3</sup> (microgrammes per cubic metre); a slightly lower concentration, 26.6 µg/m<sup>3</sup>, was measured at the Newham Dockside site. The annual mean objective (40 µg/m<sup>3</sup>) was not exceeded at either site in 2019.

There were no exceedances of the 1-hour mean objective value (200 µg/m<sup>3</sup>) at either site. At both sites, all of the 1-hour mean concentrations fell into the “Low” pollution band.

Annual mean concentrations of nitrogen dioxide at other background and roadside sites elsewhere in London over this period ranged from 17.2 to 31.5  $\mu\text{g}/\text{m}^3$ . The 1-hour mean concentrations over the year show similar patterns at all seven monitoring sites. There was a good correlation between observed peaks at the Airport sites and other London sites, suggesting that these occurrences were principally due to regional sources and changing weather conditions that affect the dispersion and dilution of pollutant emissions.

The annual mean nitrogen dioxide concentrations measured at the diffusion tube sites ranged from 25 to 35  $\mu\text{g}/\text{m}^3$  compared with the objective value of 40  $\mu\text{g}/\text{m}^3$ . There were no measured exceedances of the air quality objective. As measured concentrations are well below 60  $\mu\text{g}/\text{m}^3$ , it is highly unlikely that the 1-hour mean objective was exceeded.

### Fine Particles ( $\text{PM}_{10}$ )

The annual mean  $\text{PM}_{10}$  concentration measured at the automatic station on the roof of City Aviation House was 21.4  $\mu\text{g}/\text{m}^3$ , while that measured at the automatic station at King George V House was 16.6  $\mu\text{g}/\text{m}^3$ . These are both well below the objective value of 40  $\mu\text{g}/\text{m}^3$ . There were nine recorded exceedances of the 24-hour mean objective at both sites (compared with the 35 exceedances allowed in a calendar year). At LCA-CAH the majority of the 24-hour mean concentrations were classified as “Low” (78.4%), with 24-hour mean concentrations classified as “Moderate” for 2.2% of the time. There was a single 24-hour mean concentration classified as ‘High’ (0.3%) and no concentrations within the ‘Very High’ pollution band. At KGV the majority (97.5%) of the running 24-hour mean concentrations were classified as ‘Low’, and the remaining 2.5% of the running 24-hour mean concentrations were ‘Moderate’ pollution events. There were no running 24-hour mean concentrations within the ‘High’ or ‘Very High’ pollution bands.

24-hour mean concentrations of  $\text{PM}_{10}$  at other background sites in London over this period showed a similar pattern to those seen at the Airport site. There was a good correlation between observed peaks at the Airport site and other London sites, suggesting that these occurrences were principally due to regional sources and changing weather conditions that affect the dispersion and dilution of pollutant emissions.

### Fine Particles ( $\text{PM}_{2.5}$ )

The annual mean  $\text{PM}_{2.5}$  concentration measured at the automatic station at King George V House was 10.6  $\mu\text{g}/\text{m}^3$ , well below the objective value of 25  $\mu\text{g}/\text{m}^3$ . The majority (96.4%) of the running 24-hour mean concentrations were classified as ‘Low’, with 24-hour mean concentrations classified as “Moderate” for 3.3% of the time. There was a single 24-hour mean concentration classified as ‘High’ (0.3%) and no concentrations within the ‘Very High’ pollution band.

Concentrations of  $\text{PM}_{2.5}$  at two other background sites in London over this period showed similar patterns and correlation in observed peaks as that at the Airport site. As for  $\text{PM}_{10}$ , this suggests that these occurrences were principally attributable to regional sources.

# 1 Introduction

- 1.1 This document represents the 2019 Annual Report for the Air Quality Monitoring Strategy (AQMS), operated on behalf of London City Airport (LCA).
- 1.2 The City Airport Development Programme (CADP) 1 planning application was granted planning permission by the Secretaries of State for Communities and Local Government and Transport in July 2016 following an appeal and public inquiry which was held in March / April 2016. Condition 57 of the CADP 1 planning permission requires that an Air Quality Monitoring Strategy be implemented on commencement of the development.
- 1.3 The AQMS, as defined within Condition 57, requires the operation of two automatic air quality monitoring stations, situated on the roof of City Aviation House and at Newham Dockside, and a network of nitrogen dioxide diffusion tubes, situated in and around the Airport site.
- 1.4 The AQMS also included a commitment to commission a new site measuring PM<sub>2.5</sub> concentrations, before 31 December 2018 at KGV House. This new site was fully operational on 1 January 2019, and records concentrations of both PM<sub>10</sub> and PM<sub>2.5</sub>; both metrics have been included within this report.
- 1.5 The AQMS is managed by Air Quality Consultants Ltd. (AQC) on behalf of London City Airport. Service support for the automatic monitoring stations is provided by Enviro Technology Services plc and Air Monitors Ltd, with Ricardo Energy & Environment providing independent audit checks.
- 1.6 Chapter 2 of this Report sets out the various standards and guidelines against which air pollution concentrations should be compared. Chapter 3 describes the monitoring methodology and provides a summary of the measured concentrations in 2019 with respect to these criteria, and compares the measured concentrations with other local monitoring sites. Chapter 4 then provides some analysis of the monitoring data with respect to trends and source contributions.

## 2 Assessment Criteria

- 2.1 The Government has established a set of air quality standards and objectives to protect human health. The 'standards' are set as concentrations below which effects are unlikely even in sensitive population groups, or below which risks to public health would be exceedingly small. They are based purely upon the scientific and medical evidence of the effects of an individual pollutant. The 'objectives' set out the extent to which the Government expects the standards to be achieved by a certain date. They take account of economic efficiency, practicability, technical feasibility and timescale. The objectives for use by local authorities are prescribed within the Air Quality Regulations, 2000 (Stationery Office, 2000) and the Air Quality (England) (Amendment) Regulations 2002 (Stationery Office, 2002). The relevant objectives for this report are provided in Table 1.
- 2.2 The European Union has also set limit values for nitrogen dioxide, PM<sub>10</sub> and PM<sub>2.5</sub>. Achievement of these values is a national obligation rather than a local one (Directive 2008/50/EC of the European Parliament and of the Council, 2008), and compliance can only be determined by the national monitoring network operated by Defra. The limit values are numerically the same as the UK objectives; the nitrogen dioxide limit values were to have been achieved by 2010 (The Air Quality Standards Regulations 2010 (No. 1001), 2010), the PM<sub>10</sub> limit values were to be achieved by 2005, and the PM<sub>2.5</sub> limit value was to be achieved by 2015.

**Table 1: Relevant Air Quality Objectives**

Pollutant	Time Period	Objective / Value
<b>Nitrogen Dioxide</b>	1-hour mean	200 µg/m <sup>3</sup> not to be exceeded more than 18 times a year
	Annual mean	40 µg/m <sup>3</sup>
<b>Fine Particles (PM<sub>10</sub>)<sup>a</sup></b>	24-hour mean	50 µg/m <sup>3</sup> not to be exceeded more than 35 times a year <sup>b</sup>
	Annual mean	40 µg/m <sup>3</sup>
<b>Fine Particles (PM<sub>2.5</sub>)<sup>c</sup></b>	Annual mean	25 µg/m <sup>3</sup>

<sup>a</sup> Measured by the gravimetric method.

<sup>b</sup> Equivalent to a 90th percentile of 24-hour mean concentrations of 50 µg/m<sup>3</sup>.

<sup>c</sup> The PM<sub>2.5</sub> objective, which is to be met by 2020, is not in Regulations and there is no requirement for local authorities to meet it. The limit value was to be met by 1 January 2015.

- 2.3 In addition to the objectives, Defra has established a set of descriptors for the 1-hour mean values for nitrogen dioxide and for the 24-hour mean values for PM<sub>10</sub> and PM<sub>2.5</sub>, classifying the concentrations in an index from 1 to 10 and thus labelling the levels as 'Low', 'Moderate', 'High' or 'Very High' (Defra, 2013). The banding is referred to as the Daily Air Quality Index (DAQI). The DAQI criteria are set out in Table 2.

**Table 2: Daily Air Quality Index Bandings ( $\mu\text{g}/\text{m}^3$ )**

Band	Index	Nitrogen Dioxide 1-hour Mean ( $\mu\text{g}/\text{m}^3$ )	PM <sub>10</sub> 24-hour mean ( $\mu\text{g}/\text{m}^3$ ) <sup>a</sup>	PM <sub>2.5</sub> 24-hour mean ( $\mu\text{g}/\text{m}^3$ ) <sup>a</sup>
Very High	10	601 or more	101 or more	71 or more
High	9	535 – 600	92 – 100	65 – 70
	8	468 – 534	84 – 91	59 – 64
	7	401 – 467	76 – 83	54 – 58
Moderate	6	335 – 400	67 – 75	48 – 53
	5	268 – 334	59 – 66	42 – 47
	4	201 – 267	51 – 58	36 – 41
Low	3	135 – 200	34 – 50	24 – 35
	2	68 – 134	17 – 33	12 – 23
	1	0 – 67	0 – 16	0 – 11

<sup>a</sup> Reference equivalent. 24-hour values are for the period 00:00 to 23:59.



### 3 Monitoring Methodology and Results

#### Automatic Monitoring Stations

3.1 Monitoring was carried out at two automatic stations as follows:

- City Aviation House (LCA-CAH): nitrogen dioxide and PM<sub>10</sub>.
- Newham Dockside (LCA-ND): nitrogen dioxide.
- King George V House (LCA-KGV): PM<sub>10</sub> and PM<sub>2.5</sub>.

3.2 The locations of the three automatic sites are shown in Figure 1.

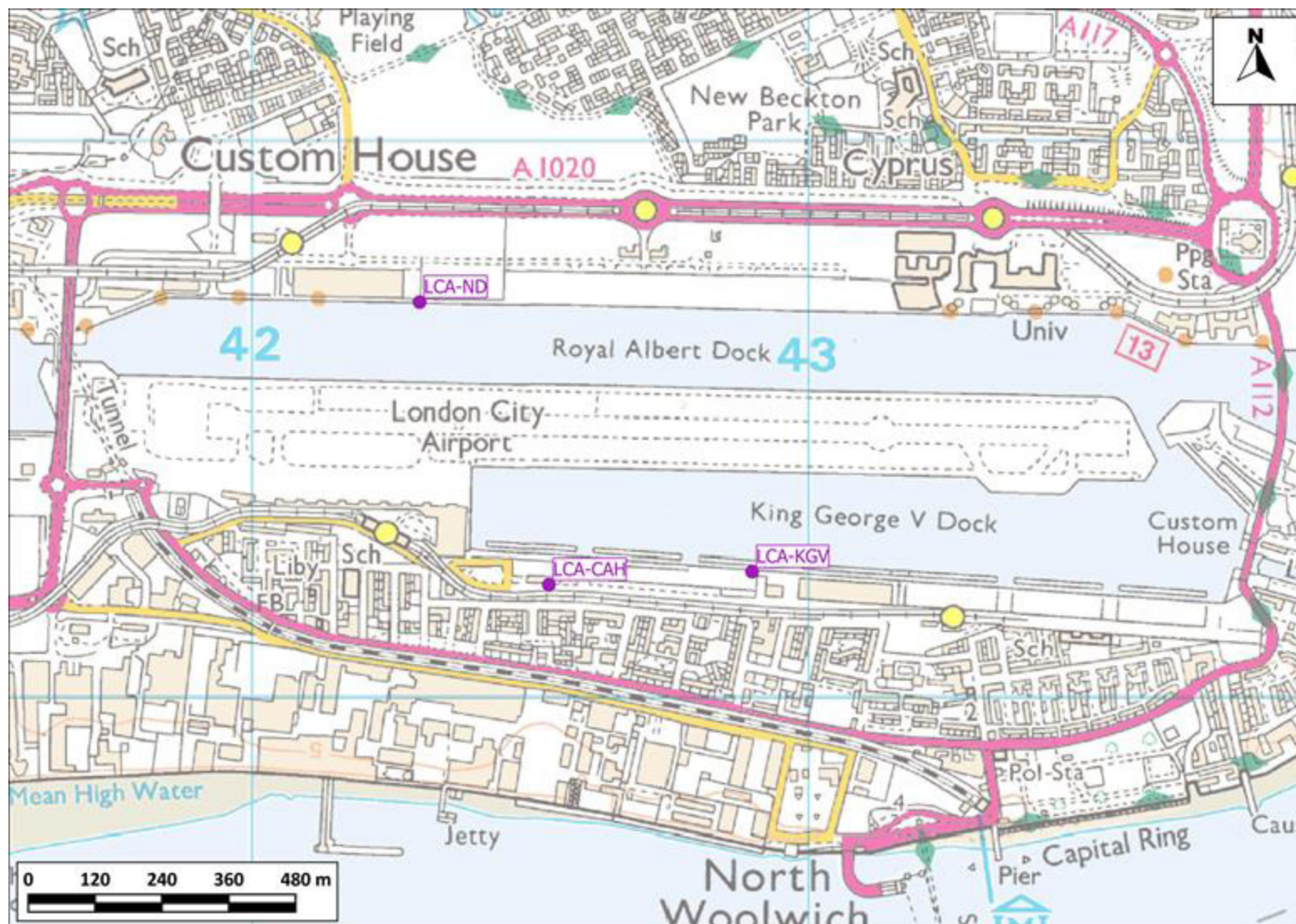
3.3 The LCA-CAH automatic monitoring station measures PM<sub>10</sub> using a Rupprecht and Patashnick TEOM 1400 Particulate Monitor, whilst both automatic monitoring stations measuring nitrogen dioxide (LCA-CAH and LCA-ND) use M200E TAPI chemiluminescence analysers. The LCA-KGV automatic monitoring station measures PM<sub>10</sub> and PM<sub>2.5</sub> using a Palas FIDAS 200 Particulate Monitor. The data are stored as 15-minute mean concentrations. Before further processing and ratification, the raw PM<sub>10</sub> concentrations measured at LCA-ND have been adjusted to a “reference-equivalent” using the Volatile Correction Model (VCM) as recommended by Defra (2016). This adjusts the TEOM data using the “purge” concentration measured by an FDMS analyser, assuming this represents the volatile component that has been lost. A “VCM web portal” has been established that allows this correction to be derived from the mean of up to three, nearby FDMS analysers in the national network. The PM<sub>10</sub> and PM<sub>2.5</sub> concentrations measured at LCA-KGV are “reference equivalent” and are unadjusted.

3.4 Independent site audits, conducted by Ricardo Energy & Environment, confirmed that both automatic monitoring stations were operating above the minimum standards set for the national networks operated by Government. Audits were carried out on 21<sup>st</sup> February 2019, 16<sup>th</sup> September 2019 and 19<sup>th</sup> March 2020, and have been taken into account in producing the fully ratified dataset.

3.5 Ratification of the data has been based on calibration factors determined from the calibration reports, along with visual examination of the data and comparison with monitoring data from nearby national network background sites (Bexley, Bloomsbury and Eltham) (Defra, 2019). Any erroneous data have been flagged and removed from subsequent analysis. 1-hour, 24-hour, and annual mean concentrations have then been calculated.

3.6 Pollution concentrations measured at all three automatic Airport monitoring stations are associated with a wide range of sources at the local, regional, national and international scales. On occasions when pollution levels rise, these higher levels are often observed across the whole of London as a “regional pollution episode”. To assist with the interpretation of the results, comparable data have

been obtained from the national Air Quality Archive (Defra, 2019) for three background sites, Bexley, Bloomsbury and Eltham, and from the Air Quality England website (AQE, 2019) for two sites within the London Borough of Newham at Wren Close, Canning Town (background) and Cam Road, Stratford (roadside).



**Figure 1: Automatic Monitoring Locations (purple dots).** © Crown Copyright 2020. All rights reserved. Licence number 100046099

## Nitrogen Dioxide

- 3.7 The 2019 nitrogen dioxide results for the LCA-CAH and LCA-ND automatic monitoring stations are summarised in Table 3. Data capture<sup>1</sup> for LCA-CAH and LCA-ND was 81.3% and 93.0%, respectively. The annual mean concentration did not exceed the objective of 40 µg/m<sup>3</sup> at either site. The 1-hour mean objective was also not exceeded, and there were no 1-hour mean concentrations above the objective value (200 µg/m<sup>3</sup>) recorded at either site.

**Table 3: Nitrogen Dioxide (NO<sub>2</sub>) Data Summary for LCA-CAH and LCA-ND, 2019<sup>a</sup>**

Metric	LCA-CAH	LCA-ND	Objectives
	NO <sub>2</sub>	NO <sub>2</sub>	
Maximum 1- Hour Mean	134 µg/m <sup>3</sup>	115.6 µg/m <sup>3</sup>	-
No. 1-Hour Mean > 200 µg/m <sup>3</sup>	0	0	200 µg/m <sup>3</sup> ; no more than 18 exceedances
Annual Mean	29.7 µg/m <sup>3</sup>	26.6 µg/m <sup>3</sup>	40 µg/m <sup>3</sup>
Data Capture	81.3%	93.0%	-

<sup>a</sup> Nitrogen oxides concentrations are provided in Appendix 1.

- 3.8 Table 4 shows the distribution of the 1-hour mean values into the different pollution bands (DAQI). At both sites, all measured 1-hour mean nitrogen dioxide concentrations fell into the 'Low' pollution band during 2019.

**Table 4: DAQI Bandings for Nitrogen Dioxide, 2019**

Band	Index	LCA-CAH	LCA-ND
Very High <sup>a</sup>	10		
High <sup>a</sup>	9		
	8		
	7		
Moderate <sup>a</sup>	6		
	5		
	4		
Low <sup>a</sup>	3	1	
	2	539	372
	1	6585	7772

<sup>a</sup> Number of 1-hour values

<sup>1</sup> It is inevitable that a small amount of data will be "lost" in each year due to routine downtime for calibrations and site servicing. The lower data capture at LCA-CAH (primarily between the 13<sup>th</sup> August and the 20<sup>th</sup> October) was due to a telecommunications equipment failure. In order to reduce the risk of data loss arising from communication failure, the on-site modem has been upgraded to a modern wireless solution that will offer greater reliability and service availability.

- 3.9 Nitrogen dioxide concentrations for five monitoring sites across London in 2019 are summarised in Table 5. These sites range from central London (Bloomsbury) to outer London (Bexley). The measured annual mean concentrations at London City Airport (29.7  $\mu\text{g}/\text{m}^3$  at LCA-CAH and 26.6  $\mu\text{g}/\text{m}^3$  at LCA-ND) were lower than those at London Bloomsbury (31.5  $\mu\text{g}/\text{m}^3$ ), similar to those at Canning Town and Stratford (28.0  $\mu\text{g}/\text{m}^3$  and 29.2  $\mu\text{g}/\text{m}^3$  respectively), and higher than those measured at Eltham and Bexley (17.2  $\mu\text{g}/\text{m}^3$  and 22.5  $\mu\text{g}/\text{m}^3$ , respectively). This is broadly consistent with the location of London City Airport between the areas of high concentrations in central London and lower concentrations towards the outskirts. The maximum 1-hour mean concentrations recorded at both sites at London City Airport were similar as those recorded at all of the monitoring sites, in that there were no exceedances of the 1-hour mean objective.

**Table 5: Nitrogen Dioxide (NO<sub>2</sub>) Data Summary for London Monitoring Sites, 2019<sup>a</sup>**

Metric	Background Site				Roadside Site
	Bexley	Bloomsbury	Eltham	Canning Town	Stratford
Max. 1-hr Mean ( $\mu\text{g}/\text{m}^3$ )	118.1	122.2	91.3	127.7	109.1
No. 1-hr >200 $\mu\text{g}/\text{m}^3$	0	0	0	0	0
Annual Mean ( $\mu\text{g}/\text{m}^3$ )	22.5	31.5	17.2	28.0	29.2
Data Capture (%)	99.2	97.7	97.5	99.6	99.1

<sup>a</sup> Includes provisional data. Nitrogen oxides concentrations are provided in Appendix 1.

### Particulate Matter PM<sub>10</sub>

- 3.10 The 2019 PM<sub>10</sub> results for the LCA-CAH and LCA-KGV automatic monitoring stations are summarised in Table 6. Data capture was good at LCA-CAH (79.7%<sup>1</sup>) and high at LCA-KGV (>90%) during the period. The recorded annual mean concentrations at LCA-CAH (21.4  $\mu\text{g}/\text{m}^3$ ) and LCA-KGV (16.6  $\mu\text{g}/\text{m}^3$ ) were both well below the objective value of 40  $\mu\text{g}/\text{m}^3$ . There were nine measured exceedances of the 24-hour mean objective level of 50  $\mu\text{g}/\text{m}^3$  at both sites, compared with the 35 exceedances allowed in a year. The 90<sup>th</sup> percentile of daily mean concentrations at both LCA-CAH (34.4  $\mu\text{g}/\text{m}^3$ ) and LCA-KGV (28.8  $\mu\text{g}/\text{m}^3$ ) were below 50  $\mu\text{g}/\text{m}^3$ .

**Table 6: PM<sub>10</sub> Data Summary for LCA-CAH and LCA-KGV, 2019**

Metric	LCA-CAH	LCA-KGV	PM <sub>10</sub> Objectives
	TEOM, VCM-corrected	FIDAS	
Maximum 24-hour Mean	76.4 $\mu\text{g}/\text{m}^3$	69.8 $\mu\text{g}/\text{m}^3$	-
No. 24-Hour Means >50 $\mu\text{g}/\text{m}^3$	9	9	50 $\mu\text{g}/\text{m}^3$ ; no more than 35 exceedances
90 <sup>th</sup> Percentile	34.4 $\mu\text{g}/\text{m}^3$	28.8 $\mu\text{g}/\text{m}^3$	50 $\mu\text{g}/\text{m}^3$
Annual Mean	21.4 $\mu\text{g}/\text{m}^3$	16.6 $\mu\text{g}/\text{m}^3$	40 $\mu\text{g}/\text{m}^3$
Data Capture	79.7%	100%	-



- 3.11 Table 7 includes the distribution of the 24-hour mean values into the different pollution bands (DAQI). Most of the 24-hour mean measured PM<sub>10</sub> concentrations during 2019 fell into the 'Low' pollution band at both sites (78.4% at LCA-CAH and 97.5% at LCA-KGV), with nine occasions falling into the 'Moderate' or 'High' bands at each site. There were no 'Very High' pollution events.

**Table 7: DAQI Bandings for PM<sub>10</sub>, 2018**

Band	Index	LCA-CAH	LCA-KGV
Very High <sup>a</sup>	10		
High <sup>a</sup>	9		
	8		
	7	1	
Moderate <sup>a</sup>	6	1	2
	5	3	2
	4	4	5
Low <sup>a</sup>	3	24	17
	2	158	102
	1	104	237

<sup>a</sup> Number of 24-hour mean values.

- 3.12 PM<sub>10</sub> concentrations for six sites across London in 2019 are summarised in Table 8. These sites range from central London (Bloomsbury and Eltham) to outer London (Bexley), with two in east London (Stratford). The measured annual mean concentration at LCA-CAH (21.4 µg/m<sup>3</sup>) was higher than all these sites, whilst that measured at LCA-KGV was lower than all sites, with the exception of Eltham. The number of 24-hour mean exceedances of 50 µg/m<sup>3</sup> was similar to that at Bexley (TEOM and FDMS) and Bloomsbury and higher than that measured at Eltham, Canning Town and Stratford.

**Table 8: PM<sub>10</sub> Data Summary of Background London Monitoring Sites, 2018<sup>a</sup>**

	Background Sites					Roadside Site
	Bexley (TEOM)	Bexley (FDMS)	Bloomsbury (FDMS)	Eltham (FDMS)	Canning Town (FDMS)	Stratford (FDMS)
Maximum 24-hr mean (µg/m <sup>3</sup> )	69.1	72.6	65.8	64.2	61.0	57.8
Annual Mean (µg/m <sup>3</sup> )	18.4	18.6	17.8	14.3	18.1	17.7
No. 24-hr mean >50 µg/m <sup>3</sup>	10	11	11	3	4	3
90 <sup>th</sup> Percentile	33.1	33.4	31.5	24.9	29.2	31.5
Data Capture (%)	99.3	94.8	85.8	86.9	97.9	93.4

<sup>a</sup> All values are reference equivalent. All data, except where stated, are reported as VCM-corrected TEOM concentrations.

### Particulate Matter $PM_{2.5}$

- 3.13 The 2019  $PM_{2.5}$  results for the LCA-KGV automatic monitoring station are summarised in Table 9. Data capture was 100% during the period. The recorded annual mean concentration was  $10.6 \mu\text{g}/\text{m}^3$ .

**Table 9:  $PM_{2.5}$  Data Summary for LCA-KGV, 2019**

Pollutant	FIDAS
	$PM_{2.5}$
Period Mean	$10.6 \mu\text{g}/\text{m}^3$
Data Capture	100%

- 3.14 Table 7 includes the distribution of the 24-hour mean values into the different pollution bands (DAQI). The majority of 24-hour mean measured  $PM_{2.5}$  concentrations fell into the 'Low' pollution band (96.4%) during 2019; there were also twelve 24-hour mean values within the 'Moderate' pollution band (3.3%) and a single 'High' pollution event (0.3%). There were no 'Very High' pollution events.

**Table 10: DAQI Bandings for  $PM_{2.5}$ , 2019**

Band	Index	LCA-KGV
Very High <sup>a</sup>	10	
High <sup>a</sup>	9	
	8	1
	7	
Moderate <sup>a</sup>	6	1
	5	6
	4	5
Low <sup>a</sup>	3	21
	2	63
	1	268

<sup>a</sup> Number of 24-hour mean values falling within band.

- 3.15  $PM_{2.5}$  concentrations for two sites in London in 2019 are summarised in Table 11. The Bloomsbury site is located in central London and the Eltham site is located between central and outer London. The measured annual mean concentration at London City Airport ( $10.6 \mu\text{g}/\text{m}^3$ ) was lower than those measured at Bloomsbury and Eltham.

**Table 11: PM<sub>2.5</sub> Data Summary of London Monitoring Sites, 2019**

	Background Site	
	Bloomsbury (FDMS)	Eltham (FDMS)
Period Mean (µg/m <sup>3</sup> )	12.2	10.8
Data Capture (%)	90.2	97.6

### Nitrogen Dioxide Diffusion Tube Network

- 3.16 London City Airport also operates a network of passive diffusion tube samplers for nitrogen dioxide. The intent of this network is to establish the wider spatial pattern of nitrogen dioxide concentrations in the area surrounding the Airport. The locations of the monitoring sites are shown in Figure 2, and are described in Table 9; grid references and the monthly mean data are provided in Appendix 3. The diffusion tubes are exposed for approximately 4-week intervals. They are supplied and analysed by Gradko International Ltd., and are prepared using the 20% TEA in water method.
- 3.17 The diffusion tubes record monthly mean concentrations, which have been averaged to give the annual mean. The results cannot, therefore, be directly compared with the 1-hour mean objective. However, measurements across the UK have shown that the 1-hour mean nitrogen dioxide objective is unlikely to be exceeded where the annual mean concentration is below 60 µg/m<sup>3</sup> (Defra, 2016).

**Table 9: Description of Diffusion Tube Monitoring Sites <sup>a</sup>**

Location	Site ID
Lamp post at top of Parker Street, adjacent to housing	LCA 01
Lamp post on Camel Road, adjacent to nearest property on Hartmann Street	LCA 02
Lamp post at waterfront to east end of Newham Dockside	LCA 04
Lamp post on Straight Road, at kerbside	LCA 05
Lamp post on pedestrian walkway adjacent to nearest housing at Gallions Way	LCA 06
Landing Lights	LCA 07
Lamp post on Brixham Street	LCA 08
City Aviation House (triplicate tubes)	LCA 09
Jet Centre – airside	LCA 10
Lamp post at waterfront, eastern end of the University of East London	LCA 11
ILS, to north of runway and south of Royal Albert Dock	LCA 12
Lamp post at north west corner of Newham Dockside	LCA 13
Lamp post on waterfront at western end of Newham Dockside	LCA 14
Lamp post at kerbside (approx 1 m) of Royal Albert Way	LCA 15
Newham Dockside analyser (duplicate tubes)	LCA 18



Lamp post adjacent to roundabout, near to access road in Silvertown Quay. Approx. 1 metre from kerbside of main road.	LCA 20
--	--------

- <sup>a</sup> LCA-17 was discontinued from January 2012, as the lamppost on which diffusion tubes were deployed had been removed. LCA-16 and LCA-19 were discontinued from January 2017, as the land on which the sites were located had been vacated for construction works. LCA-03 has been discontinued from April 2018 due to ongoing issues with access. LCA-20 was initiated at the start of April 2018.

- 3.18 It is important to note that not all of these monitoring sites represent relevant public exposure for annual mean concentrations of nitrogen dioxide; thus the objectives are not strictly applicable at all of these sites. For instance, the sites at Landing Lights (LCA 07), the Jet Centre (LCA 10) and the ILS (LCA 12) are located on land that is not generally accessible by the public, or is owned by the Airport. The sites at LCA 04 (at the waterfront of Newham Dockside), LCA 11 (at the waterfront of the University of East London) and LCA 13, 14 and 15 (in the vicinity of Newham Dockside and Royal Albert Way) and LCA 20 would also not represent relevant exposure for annual mean concentrations according to the criteria defined in LLAQM.TG(16)<sup>2</sup>, but are relevant for the 1-hour mean objective. These sites have been included in the study to better understand the spatial pattern of nitrogen dioxide concentrations around the Airport.
- 3.19 Diffusion tubes are known to show systematic bias in relation to automatic (reference) monitors. For this reason, a co-location study has been carried out, with triplicate tubes exposed alongside the inlet to the automatic monitor at LCA-CAH, and duplicate tubes exposed in close proximity to the inlet of the LCA-ND automatic monitor. Comparison of the matched period results shows that the diffusion tubes were over-reading by an average of 25.6%. An adjustment factor of 0.796 has therefore been applied to all diffusion tube results to ensure that they give the best representation of true concentrations (see Appendix 3). The results from the triplicate tubes at LCA-CAH and the duplicate tubes at LCA-ND indicate overall “good” precision ( $\pm 5.0\%$  at both sites) in 2018 (Defra 2016).
- 3.20 The bias-adjusted results are summarised in Table 10, and are also shown in Figure 3. The results show that the annual mean objective of  $40 \mu\text{g}/\text{m}^3$  was achieved at all diffusion tube monitoring locations during 2019. All measured annual mean nitrogen dioxide concentrations were well below  $60 \mu\text{g}/\text{m}^3$ , and it is thus unlikely that the 1-hour mean objective was exceeded at any location.

<sup>2</sup> Defra Technical Guidance Note LLAQM.TG(16) suggests that in the case of the annual mean objective, relevant locations should not include kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short term.

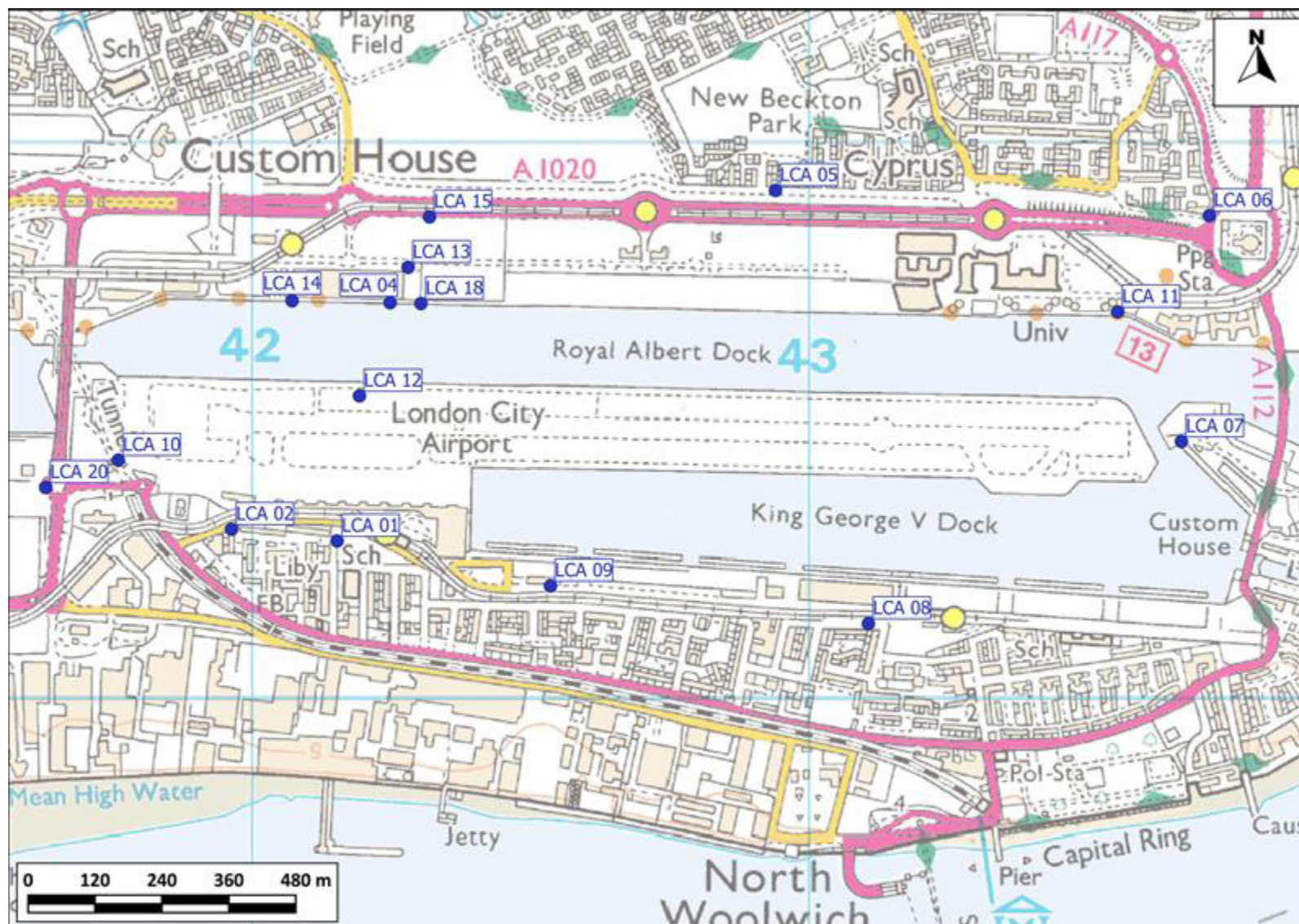
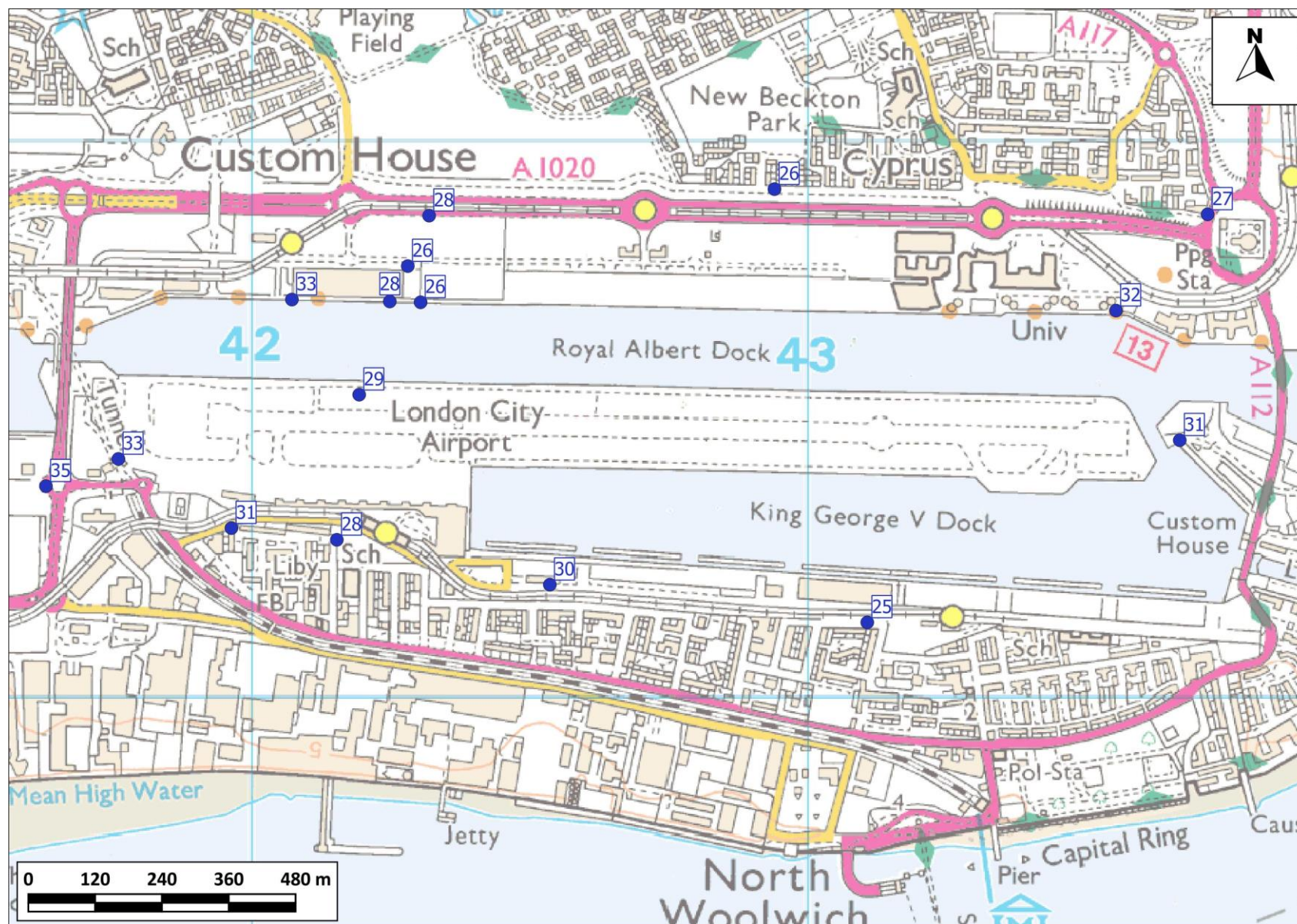


Figure 2: Diffusion Tube Monitoring Locations (blue dots) © Crown Copyright 2020. All rights reserved. Licence number 100020449.





**Figure 3: Nitrogen Dioxide Diffusion Tube Results, 2019 ( $\mu\text{g}/\text{m}^3$ )** © Crown Copyright 2020. All rights reserved. Licence number 100020449.

**Table 10: Diffusion Tube Data Summary for London City Airport, 2019 (Adjusted for Bias)**

Site ID	Adjusted Value ( $\mu\text{g}/\text{m}^3$ ) <sup>a</sup>
LCA 01	28.4
LCA 02	31.0
LCA 04	27.6
LCA 05	26.0
LCA 06	26.9
LCA 07	31.5
LCA 08	25.3
LCA 09	29.1
LCA 10	32.8
LCA 11	32.4
LCA 12	28.5
LCA 13	26.0
LCA 14	32.5
LCA 15	27.5
LCA 18	25.8
LCA 20	34.7

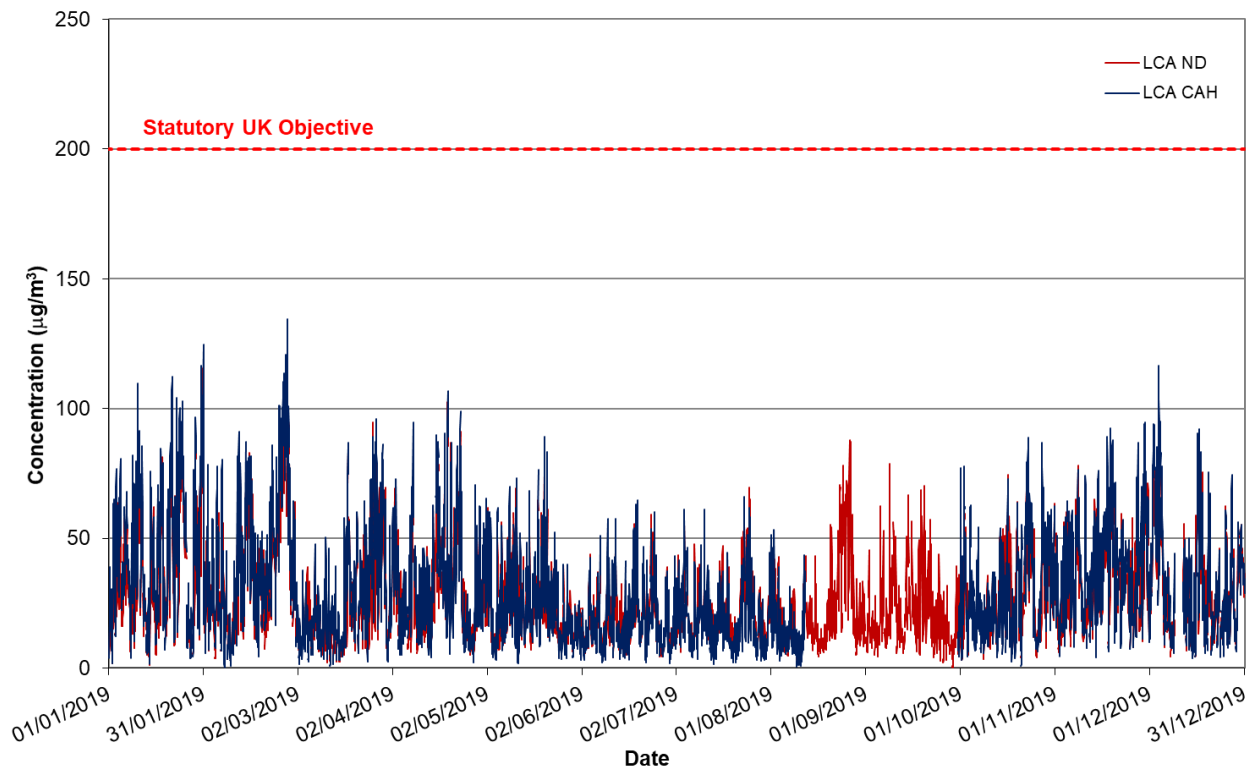
<sup>a</sup> Data have been adjusted using a local bias adjustment factor for 2019 of 0.796. The co-location studies are carried out at LCA-CAH using triplicate tubes and at LCA-ND with a duplicate tube located at the automatic monitors. Diffusion tubes were exposed for the period between 11<sup>th</sup> January 2019 to 10<sup>th</sup> January 2020.

## 4 Data Analyses

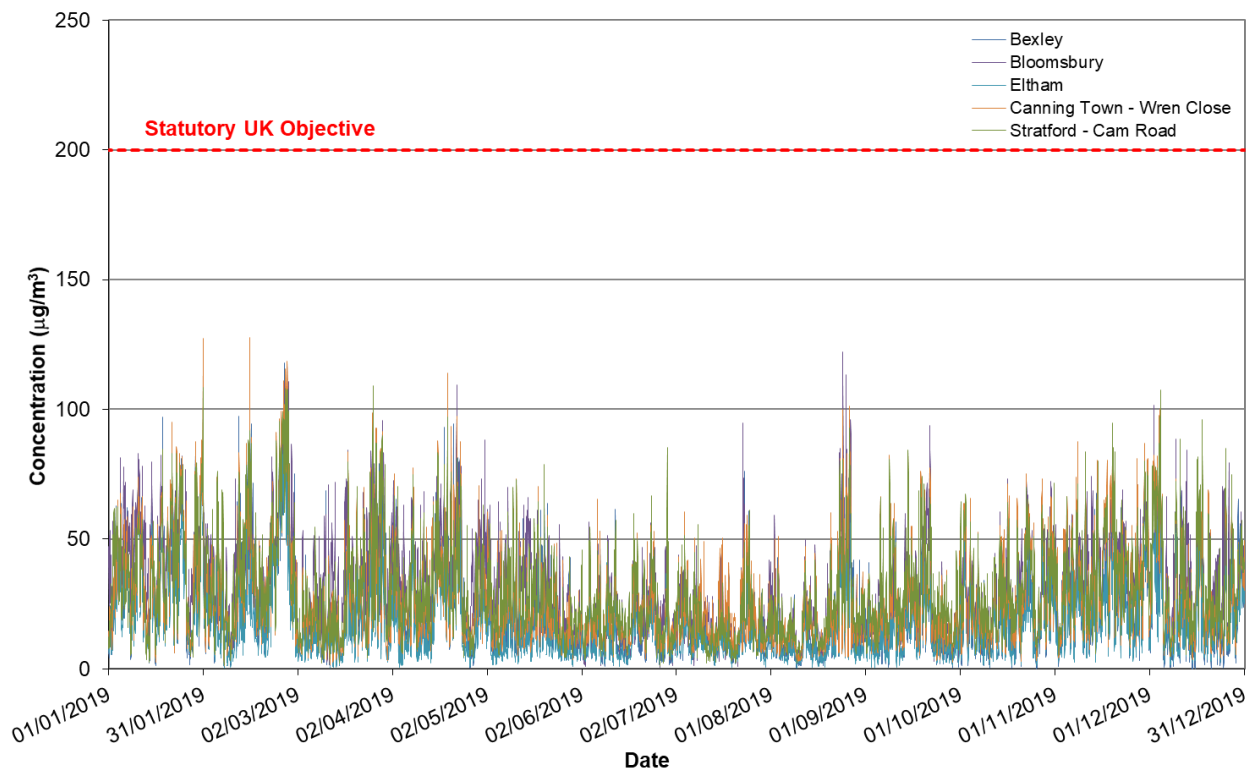
- 4.1 This chapter provides analyses of the data, including time series, trends and source contributions.

### Time Series

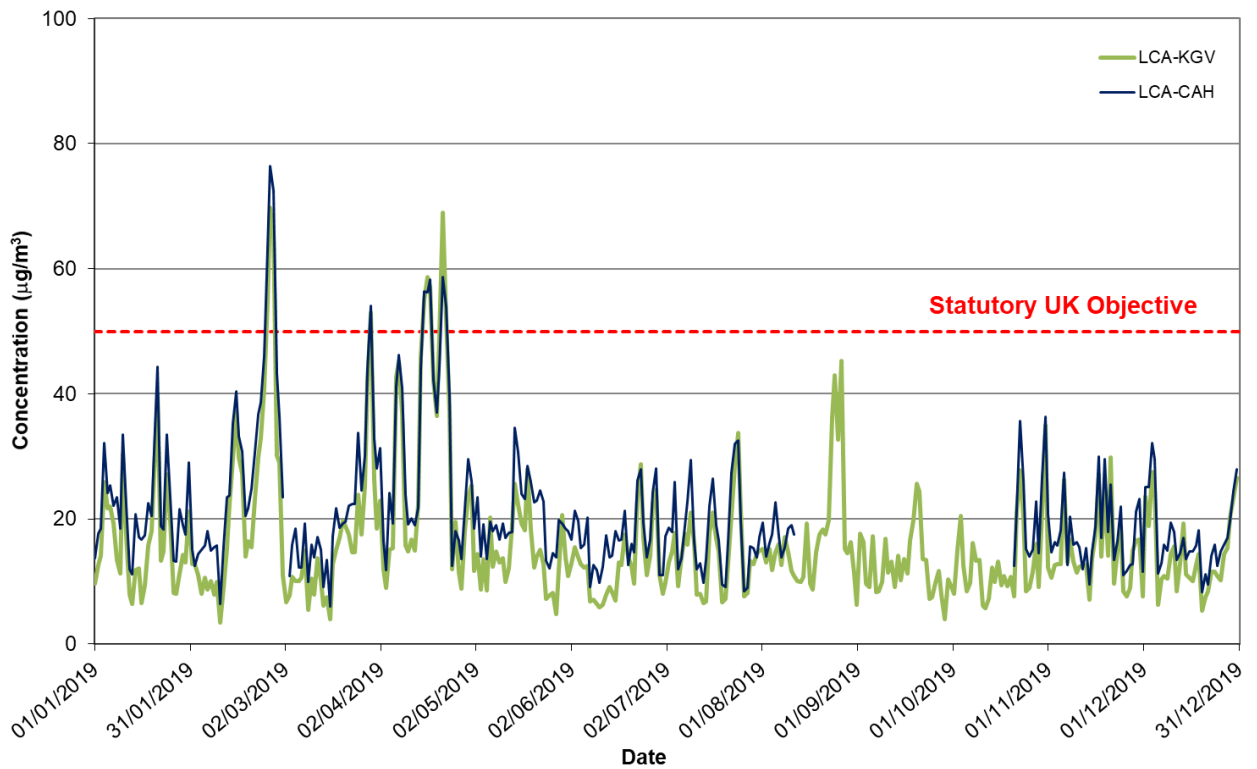
- 4.2 The measured 1-hour mean nitrogen dioxide concentrations at LCA-CAH and LCA-ND, and at Bexley, Bloomsbury, Eltham, Canning Town (Wren Close) and Stratford (Cam Road), are shown as a time series in Figures 4 and 5 respectively. The concentrations over the monitoring period show similar patterns at all seven monitoring sites. The concurrence of periods with elevated concentrations at all sites suggests that these episodes were due to regional changes in concentrations.
- 4.3 The measured daily mean PM<sub>10</sub> concentrations at LCA-CAH and at the two Bexley monitors, Bloomsbury, Eltham, Canning Town (Wren Close) and Stratford (Cam Road), are shown in Figures 6 and 7 respectively. Once again, the analysis suggests that periods of high pollution were principally due to regional changes in concentrations.
- 4.4 As with nitrogen dioxide and PM<sub>10</sub>, the concurrence of many periods of elevated PM<sub>2.5</sub> concentrations at all sites (see Figures 8 and 9) suggests that these episodes were due to regional rather than local sources and that changing weather conditions across the region affected the dispersion and dilution of pollutants.



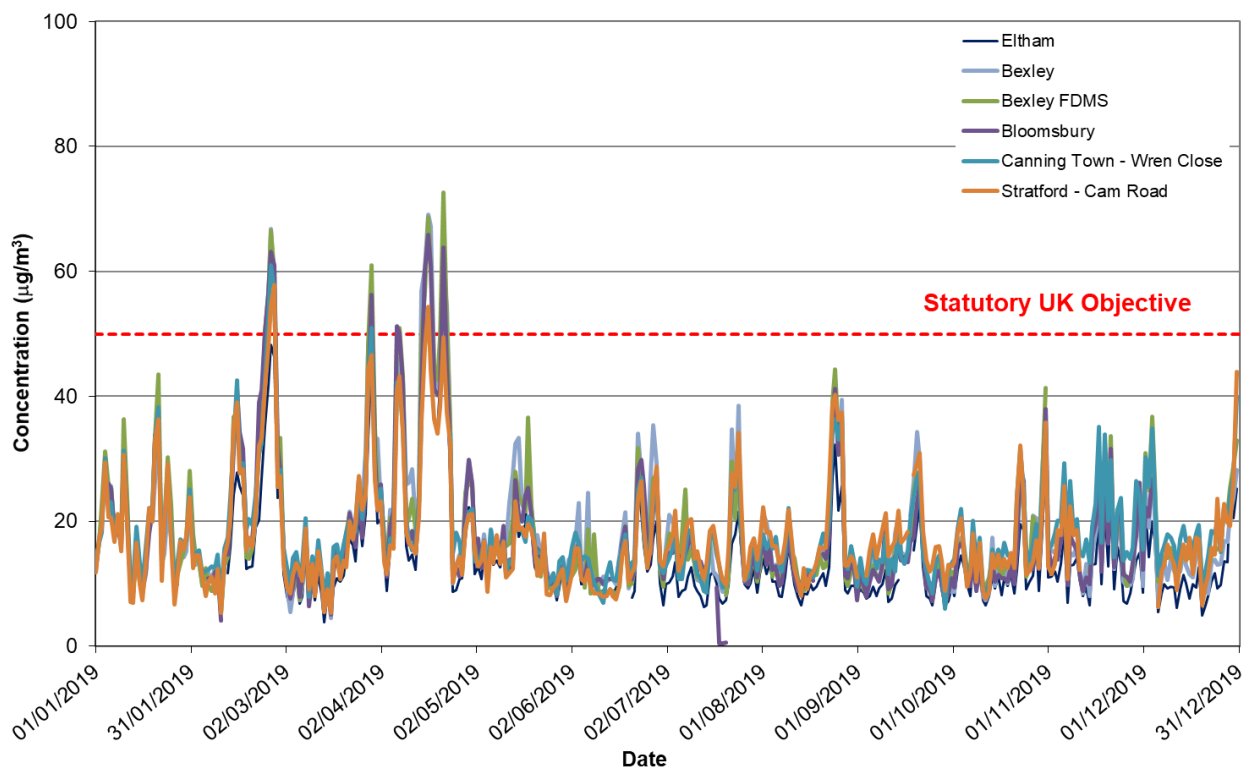
**Figure 4: 1-Hour Mean Nitrogen Dioxide Concentrations at London City Airport, 2019**



**Figure 5: 1-Hour Mean Nitrogen Dioxide Concentrations at London Monitoring Sites, 2019**

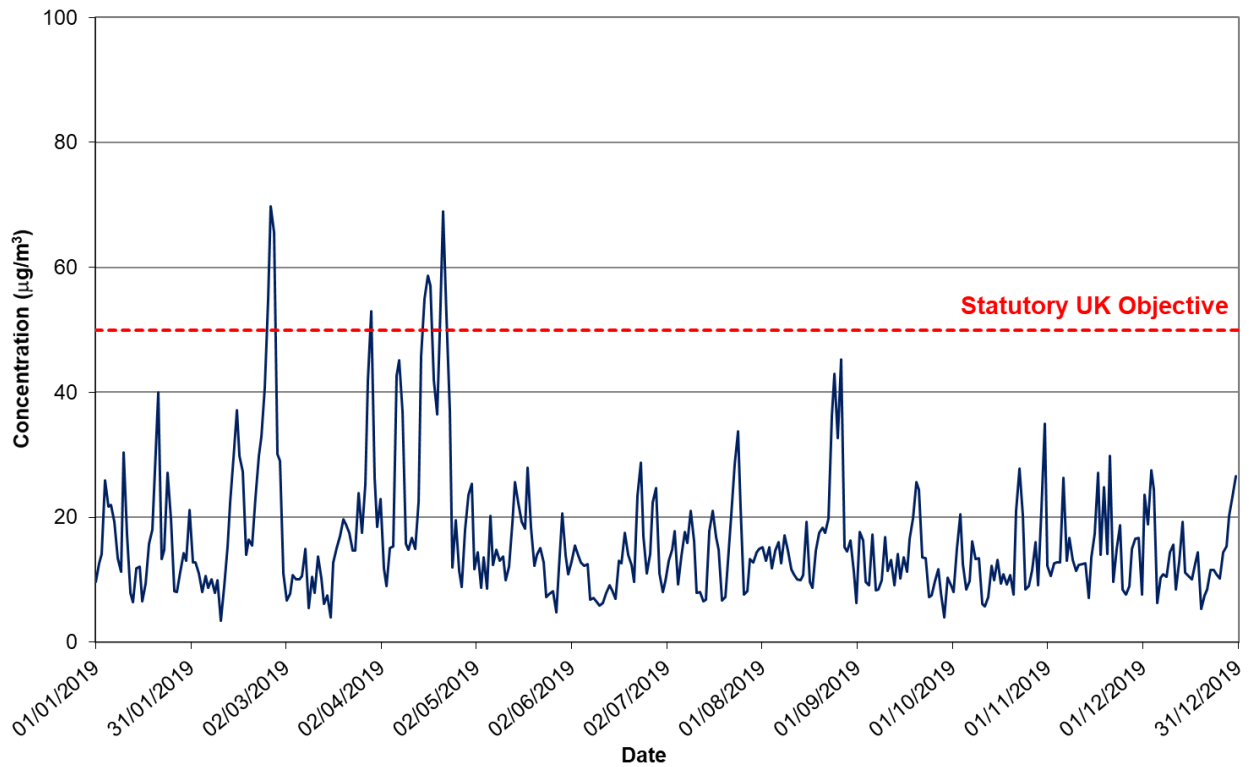


**Figure 6: Daily Mean PM<sub>10</sub> Concentrations at London City Airport (LCA-CAH and LCA-KGV), 2019**

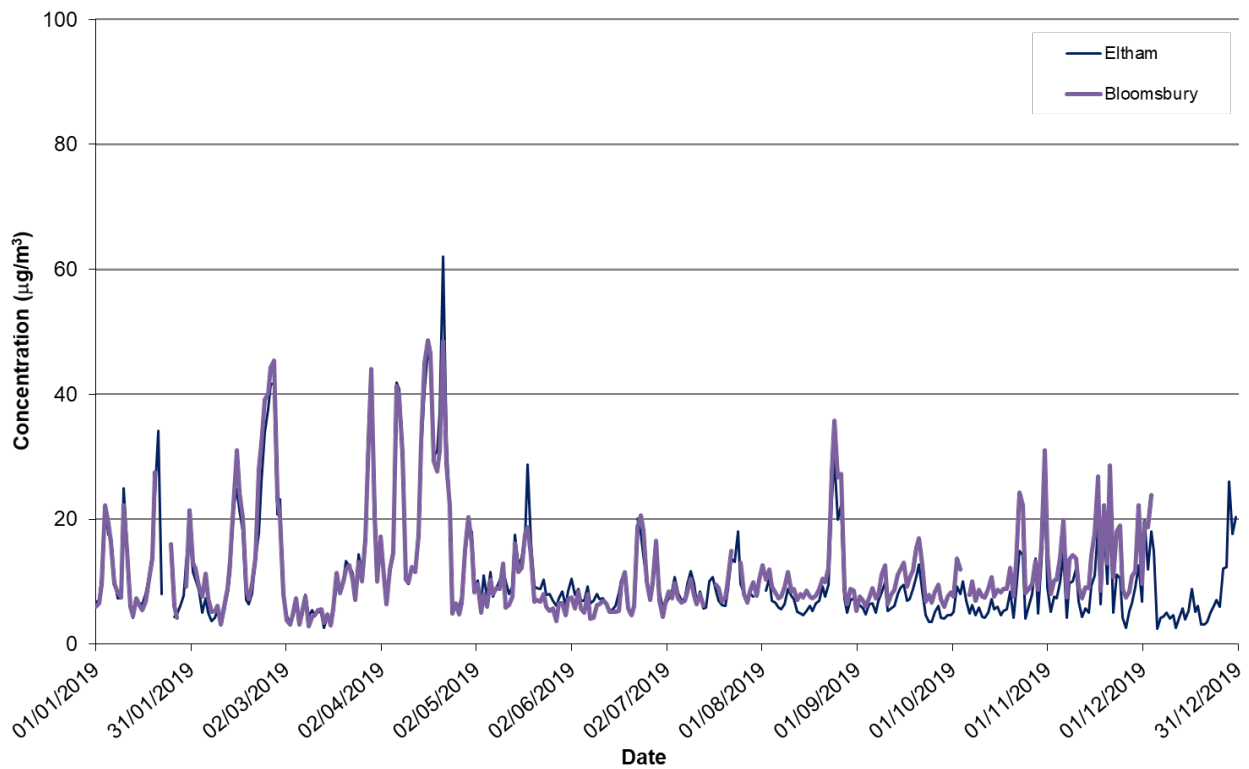


**Figure 7: Daily Mean PM<sub>10</sub> Concentrations at London Monitoring Sites, 2019**





**Figure 8: 24-hour Mean  $\text{PM}_{2.5}$  Concentrations at London City Airport (LCA-KGV), 2019**



**Figure 9: 24-hour Mean  $\text{PM}_{2.5}$  Concentrations at London Monitoring Sites, 2019**

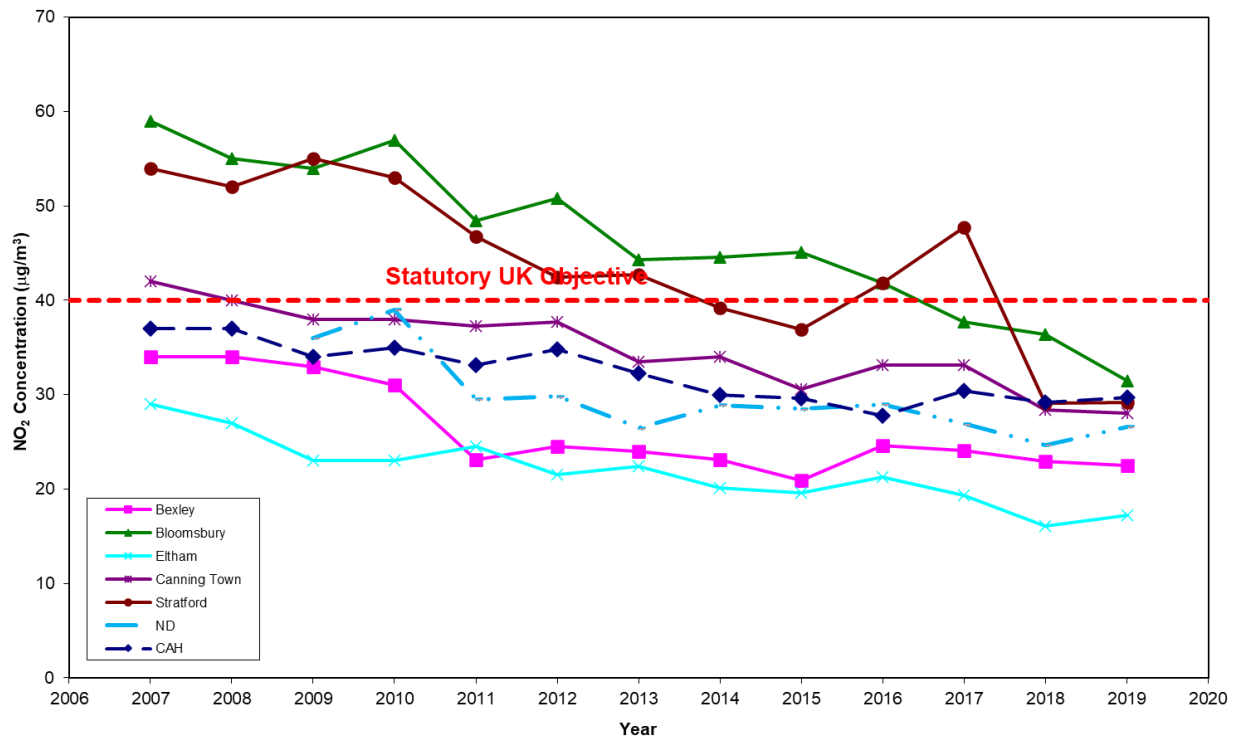


## Trends in Pollutant Concentrations

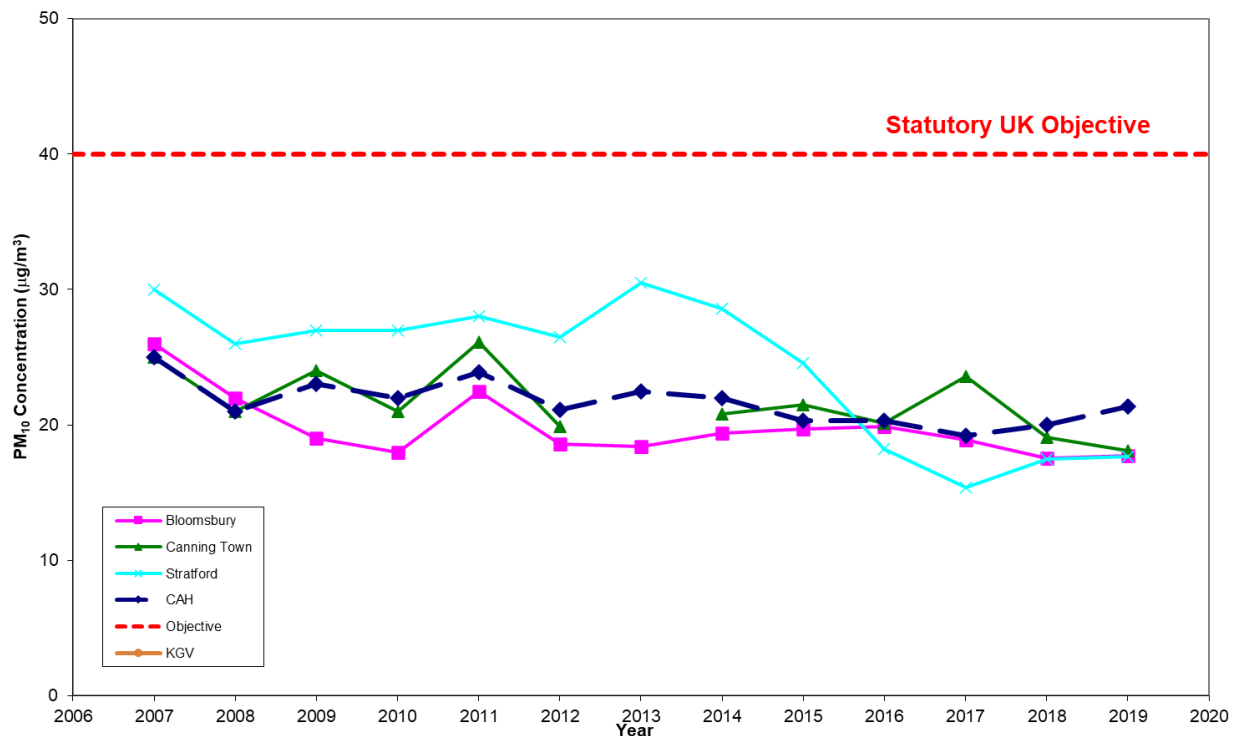
- 4.5 The automatic station at the LCA-CAH site has been in operation since September 2006 and that at LCA-ND since September 2008. It is therefore appropriate to examine whether there are any trends in the measured pollutant concentrations over time.
- 4.6 Figure 10 shows the trends in measured annual mean nitrogen dioxide concentrations at LCA-CAH and LCA-ND (NO<sub>2</sub> only<sup>3</sup>) and at the five other monitoring locations identified for the regional evaluation of pollution episodes (Bexley, Bloomsbury, Eltham, Canning Town and Stratford). From a visual examination of Figure 10, there appears to be a general downward trend at all sites over the last twelve years.
- 4.7 Because of the interest in trends, a more detailed analysis has been carried out, focusing on monitoring sites in the east London area. The results of the detailed analysis are provided in Appendix 5. In summary, there is a statistically significant downward trend at all the east-London monitoring sites for both nitrogen dioxide and nitrogen oxides (NO<sub>x</sub>), including at LCA-CAH and LCA-ND.
- 4.8 The trends in annual mean PM<sub>10</sub> concentrations are shown in Figure 11, for the LCA-CAH site and two other monitoring locations, for which twelve years of data are available. There is no clear trend between 2007 and 2019, with concentrations remaining largely unchanged over this period.

---

<sup>3</sup> For the period 2009 to 2019 only.



**Figure 10: Annual Mean Nitrogen Dioxide Concentrations, 2007 – 2019 (µg/m³)**



**Figure 11: Annual Mean PM<sub>10</sub> Concentrations, 2007 – 2019 (µg/m³) <sup>a</sup>**

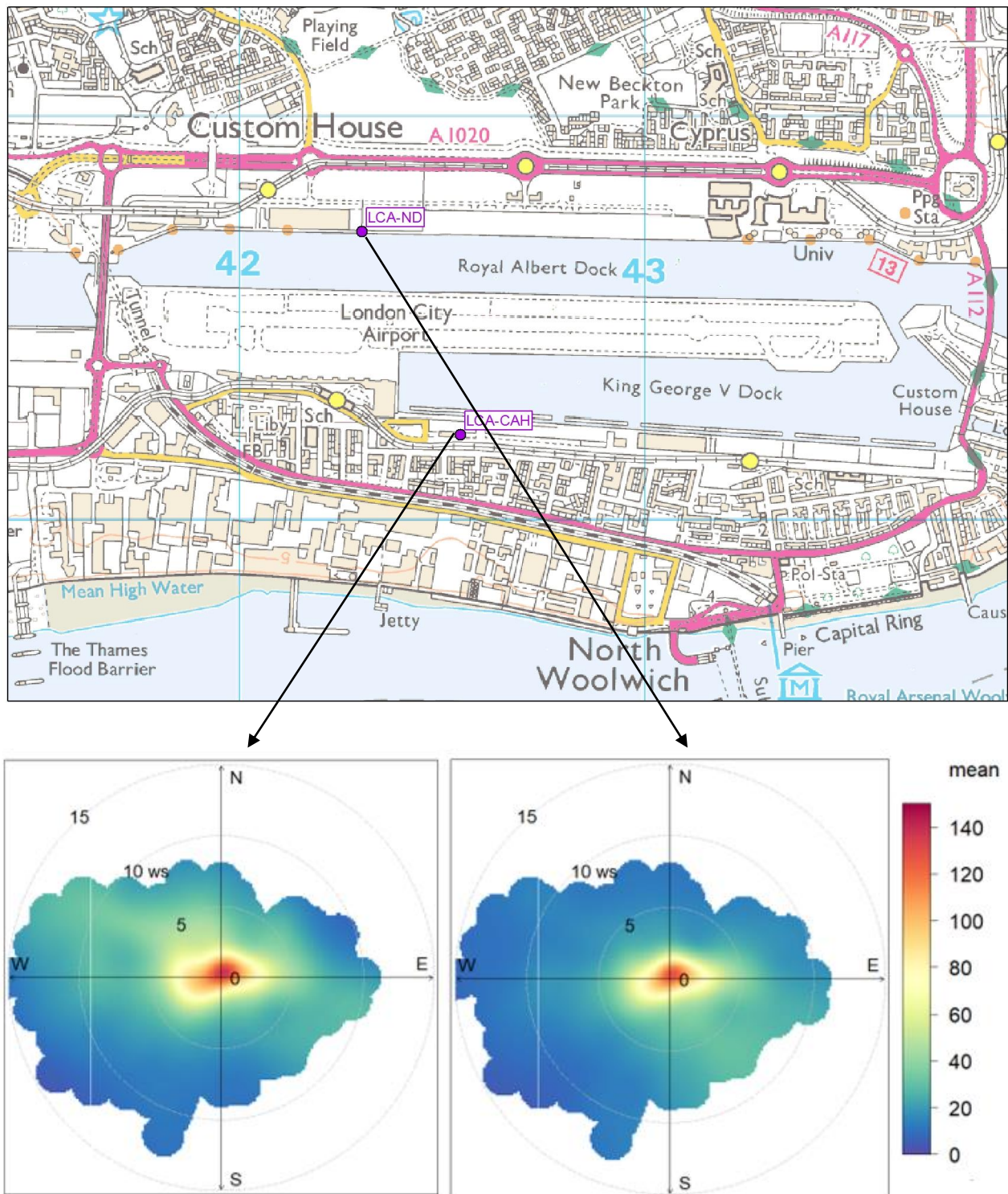
<sup>a</sup> The Canning Town TEOM was decommissioned in 2013, and re-commissioned again in 2014.

## Bivariate Pollution Roses

- 4.9 Pollution roses are a useful technique for exploring the influence of different sources of air pollution at a monitoring site. Bivariate pollution roses have been prepared using the “Openair” software<sup>4</sup>. These bivariate roses process average pollution concentration data by both wind direction and wind speed. They provide a powerful tool in identifying source contributions to measured concentrations at monitoring sites. The concentrations are shown by colour shading, with the distance from the centre point representing increasing wind speed.
- 4.10 It is known from both modelling studies and the analysis of empirical data that emissions from different source types behave differently in low and high wind speed conditions. For emissions from ground-level sources (such as road traffic), concentrations are highest during low wind speeds, and decrease rapidly with increasing wind speed (due to greater dilution and dispersion). In contrast, emissions released from elevated (e.g. chimney) sources, give rise to higher concentrations at higher wind speeds, as the plume is more likely to come down to ground close to the source. Emissions from the buoyant plumes of jet aircraft engines tend to behave in a similar manner to elevated sources. Carslaw *et al* (2006) showed how these bivariate plots could be used to identify the contribution of aircraft emissions to measured concentrations at Heathrow Airport.
- 4.11 Figure 12 shows bivariate pollution roses for NO<sub>x</sub> concentrations in 2019 at the LCA-CAH and LCA-ND sites, using wind data from the meteorological station at London City Airport. During low wind speeds, dispersion is reduced and concentrations from ground-level sources are higher. The pattern at both monitoring sites is that the highest NO<sub>x</sub> concentrations occur during low wind speeds (i.e. towards the centre of the rose), indicating that the highest concentrations are associated with ground-level source releases (the wind-speed scale runs from 0 to 15 m/s, with the concentration scale running from 0 to around 150 µg/m<sup>3</sup>). These higher concentrations are not associated with any particular wind direction. There is also some indication that emissions from the apron area are making a small contribution at both sites, with these contributions being associated with moderate wind speeds (especially for winds from the northwest for LCA-CAH). The association with higher wind speeds is suggestive of emissions from an elevated buoyant source reflecting emissions from aircraft engines.

---

<sup>4</sup> [www.openair-project.org/about\\_us.php](http://www.openair-project.org/about_us.php)



**Figure 12: Bivariate Pollution Roses at LCA-CAH and LCA-ND Sites, 2019 ( $\text{NO}_x$ ,  $\mu\text{g}/\text{m}^3$ )**

© Crown Copyright 2019. All rights reserved. Licence number 100020449.

## 5 References

Carslaw, D.C., Beevers, S.D., Ropkins, K and Bell, M.C. (2006). Detecting and quantifying aircraft and other on-airport contributions to ambient nitrogen oxides in the vicinity of a large international airport. *Atmos Environ*, 40/28 pp 5424-5434.

Carslaw, D., Beevers, S., Westmoreland, E. and Williams, M. (2011) Trends in NO<sub>x</sub> and NO<sub>2</sub> emissions and ambient measurements in the UK.

Defra, 2016. Review & Assessment: Technical Guidance LAQM.TG(16).

Defra (2011a) *Notification of changes to the Air Quality Index (Letter 1st December 2011)*, Defra.

Defra, 2011b. Precision and Accuracy Spreadsheet Tool Available at [http://http://laqm.defra.gov.uk/bias-adjustment-factors/local-bias/AEA\\_DifTPAB\\_v04.xls](http://http://laqm.defra.gov.uk/bias-adjustment-factors/local-bias/AEA_DifTPAB_v04.xls)

Defra, 2019, Defra Air Quality website. Available at: <http://uk-air.defra.gov.uk/>

KCL, 2019. London Air Quality Network. [www.londonair.org.uk](http://www.londonair.org.uk)

Stationery Office, 2000. Air Quality Regulations, 2000, Statutory Instrument 928.

Stationery Office, 2002. The Air Quality (England) (Amendment) Regulations 2002. Statutory Instrument 3043.

Stationery Office, 2007. The Air Quality Standards Regulations, 2007 (No. 64).

## 6 Glossary

<b>Exceedance</b>	A period of time where the concentration of a pollutant is greater than the appropriate air quality objective.
<b>FDMS</b>	Filter Dynamics Monitoring System.
<b>LAQN</b>	London Air Quality Network.
<b>LCA-CAH</b>	London City Airport – City Aviation House monitoring site.
<b>LCA-ND</b>	London City Airport – Newham Dockside monitoring site
<b>µg/m<sup>3</sup></b>	Microgrammes per cubic metre.
<b>NO<sub>2</sub></b>	Nitrogen dioxide.
<b>NO<sub>x</sub></b>	Nitrogen oxides (taken to be NO <sub>2</sub> + NO).
<b>NO</b>	Nitric oxide.
<b>Objectives</b>	A nationally defined set of health-based concentrations for nine pollutants, seven of which are incorporated in Regulations, setting out the extent to which the standards should be achieved by a defined date, taking into account costs, benefits, feasibility and practicality. There are also vegetation-based objectives for sulphur dioxide and nitrogen oxides.
<b>PM<sub>10</sub></b>	Small airborne particles, more specifically particulate matter less than 10 micrometers in aerodynamic diameter.
<b>Standards</b>	A nationally defined set of concentrations for nine pollutants below which health effects do not occur or are minimal.
<b>TEA</b>	Triethanolamine – absorbent for nitrogen dioxide used in diffusion tubes.
<b>TEOM</b>	Tapered Element Oscillating Microbalance.
<b>VCM</b>	Volatile Correction Model.



## A1 Appendix 1 – Nitrogen Oxides Results

- A1.1 Nitrogen oxides (NO<sub>x</sub>) concentrations, which are essentially the sum of nitrogen dioxide and nitric oxide, are presented in Table A1.1 for the automatic monitoring stations at London City Airport and for five sites across London in Table A1.2.

**Table A1.1: Nitrogen Oxides (NO<sub>x</sub>) Data Summary for LCA-CAH and LCA-ND, 2019**

Site	LCA-CAH	LCA-ND
Maximum 1-Hour Mean	670.1 µg/m <sup>3</sup>	625.5 µg/m <sup>3</sup>
Annual Mean	49.5 µg/m <sup>3</sup>	40.1 µg/m <sup>3</sup>
Data Capture	81.3%	93.0%

**Table A1.2: Nitrogen Oxides (NO<sub>x</sub>) Data Summary for London Monitoring Sites, 2019**

Site	Bexley	Bloomsbury	Eltham	Canning Town	Stratford
Maximum 1-Hour Mean (µg/m <sup>3</sup> )	617.9	488.1	488.9	700.9	624.4
Annual Mean (µg/m <sup>3</sup> )	36.4	46.3	26.1	39.7	47.8
Data Capture %	99.2	97.7	97.5	99.6	99.1

## A2 Appendix 2 – Diffusion Tube Data

A2.1 Raw monthly average diffusion tube data, along with the location details and monitoring periods, are presented in Table A2.1.

**Table A2.1: Raw Monthly Diffusion Tube Data for 2019, Not Bias Adjusted ( $\mu\text{g}/\text{m}^3$ )**

Site ID	Grid ref	11/01/19 to 05/02/19	05/02/19 to 07/03/19	07/03/19 to 05/04/19	05/04/19 to 03/05/19	03/05/19 to 07/06/19	07/06/19 to 05/07/19	05/07/19 to 14/08/19	14/08/19 to 10/09/19	10/09/19 to 04/10/19	04/10/19 to 08/11/19	08/11/19 to 06/12/19	06/12/19 to 10/01/20	Unadjusted Annual Mean	Data Capture (%)
LCA 01	542154, 180288	47.0	36.3	35.1	39.8	30.8	31.0	27.9	26.9	31.7	37.4	49.6	34.4	35.6	100%
LCA 02	541965, 180299	45.4	41.6	37.4	40.0	34.2	-	36.0	35.8	40.0	36.1	42.4	38.9	38.9	92%
LCA 04	542271, 180708	48.5	38.0	32.3	33.9	26.9	26.8	28.3	26.1	31.9	41.7	42.9	39.1	34.7	100%
LCA 05	542847, 180914	43.8	47.4	30.1	28.8	24.9	24.8	29.1	24.4	33.8	34.4	38.7	31.3	32.6	100%
LCA 06	543712, 180868	43.6	45.6	37.5	37.9	27.4	27.6	28.3	26.0	31.7	31.1	35.1	33.2	33.8	100%
LCA 07	543662, 180460	45.1	55.4	44.0	33.7	29.0	28.3	29.8	35.6	37.7	40.1	49.0	46.3	39.5	100%
LCA 08	543120, 180133	39.8	39.8	37.6	34.0	24.8	26.2	23.9	24.7	28.8	33.2	36.9	31.6	31.8	100%
LCA 09	542532, 180196	48.6	42.8	33.9	41.4	31.2	30.5	25.3	31.1	34.4	37.6	43.0	35.7	36.3	100%
		51.8	46.0	36.4	41.7	24.4	30.6	29.9	27.2	36.2	39.3	46.6	37.3	37.3	100%
		48.4	-	35.0	41.4	29.2	33.5	26.5	29.5	33.2	39.0	44.1	37.8	36.1	92%
LCA 10	541758, 180428	53.6	39.3	38.2	48.0	31.1	35.7	33.6	34.5	44.9	43.8	48.9	43.0	41.2	100%
LCA 11	543549, 180693	49.9	60.9	38.9	34.0	26.9	30.8	34.5	36.4	32.7	43.3	50.3	49.4	40.7	100%
LCA 12	542192, 180561	46.8	47.5	36.1	34.5	24.8	24.9	28.0	25.5	34.2	35.4	49.5	42.8	35.8	100%
LCA 13	542280, 180769	41.8	30.9	34.1	-	22.1	25.8	24.6	29.6	33.0	38.3	39.9	39.3	32.7	92%
LCA 14	542070, 180712	47.7	61.3	37.6	39.1	29.5	31.5	30.1	39.0	35.6	-	52.2	45.6	40.8	92%
LCA 15	542316, 180862	43.2	43.6	35.9	38.7	29.1	21.6	25.4	28.1	32.7	35.7	46.6	34.4	34.6	100%
LCA 18	542303, 180707	44.5	45.8	30.7	29.9	23.9	25.4	25.9	24.0	27.6	34.6	43.3	36.5	32.7	100%
		38.7	46.2	31.9	32.4	23.4	23.2	22.2	26.2	29.9	32.3	43.8	34.3	32.0	100%
LCA 20	541632, 180378	46.8	49.5	38.1	58.5	-	40.1	36.4	31.9	48.2	43.9	50.4	35.1	43.5	92%

– not available



## A3 Appendix 3 – Bias Adjustment Factor for Diffusion Tubes

- A3.1 Diffusion tubes are known to exhibit bias when compared to results from automatic analysers. Therefore diffusion tube results need to be adjusted to account for this bias. One of the main factors influencing diffusion tube performance is thought to be the laboratory that supplies and analyses the tubes. The diffusion tubes exposed at London City Airport are supplied and analysed by Gradko International Ltd. (20% TEA in water).
- A3.2 In order to determine the bias exhibited by these tubes, studies are carried out using triplicate tubes co-located at LCA-CAH and duplicate tubes at LCA-ND. All diffusion tube data presented in this report have been adjusted using the overall factor calculated from the data presented in Table A3.1, with the optimum relationship defined using orthogonal regression.

**Table A3.1: Results of Diffusion Tube and Continuous Monitor Co-location Studies in 2019 <sup>a</sup>**

	Diffusion Tube	Automatic	Adjustment Factor
<b>LCA-CAH <sup>b</sup></b>	37.8	29.3	0.775
<b>LCA-ND</b>	32.4	26.5	0.818
<b>Overall Factor <sup>c</sup></b>			<b>0.7963</b>

<sup>a</sup> Diffusion tubes were exposed for the period between 11<sup>th</sup> January 2019 to 10<sup>th</sup> January 2020. The automatic monitoring data correspond to this period.

<sup>b</sup> The diffusion tube data from 14<sup>th</sup> August 2019 to 4<sup>th</sup> October 2019 have been removed from the bias adjustment calculations at CAH to account for low data capture at the automatic monitor during this period.

<sup>c</sup> The overall factor has been determined using orthogonal regression.

- A3.3 Table A3.2 presents the bias adjustment factors applied to the data for the last ten years.

**Table A3.2: Previous Bias Adjustment Factors**

Year	Factor
<b>2008</b>	0.786
<b>2009</b>	0.717
<b>2010</b>	0.801
<b>2011</b>	0.738
<b>2012</b>	0.744
<b>2013</b>	0.771
<b>2014</b>	0.832
<b>2015</b>	0.858

<b>2016</b>	0.762
<b>2017</b>	0.724
<b>2018</b>	0.784
<b>2019</b>	0.796

## A4 Appendix 4 – Diffusion Tube Precision

- A4.1 Diffusion tube precision describes the ability of a measurement to be consistently reproduced, i.e. how similar the results of duplicate or triplicate tubes are to each other. It is an indication of how carefully the tubes have been handled in either the laboratory and/or the field. Tube precision is separated into two categories 'Good' or 'Poor' as follows: tubes are considered to have '**Good**' precision where the coefficient of variation (CV) of duplicate or triplicate diffusion tubes for eight or more periods during the year is less than 20%, and the average CV of all monitoring periods is less than 10%. Tubes are considered to have '**Poor**' precision where the CV of four or more periods is greater than 20% and/or the average CV is greater than 10%.
- A4.2 Table A4.1 shows that monitoring at LCA-CAH there was 'Good' precision at every month of the year. The precision is consistent with the performance of 20% TEA in water tubes supplied by Gradko International in other co-location studies (Defra, 2019).

**Table A4.1: Precision of Triplicate Diffusion Tubes, LCA-CAH**

Period	Start Date	End Date	Tube 1	Tube 2	Tube 3	Mean	Standard Deviation	CV	Tube Precision
1	11/01/2019	05/02/2019	48.6	51.8	48.4	50	1.9	3.8	Good
2	05/02/2019	07/03/2019	42.8	46.0		44	2.3	5.1	Good
3	07/03/2019	05/04/2019	33.9	36.4	35.0	35	1.3	3.7	Good
4	05/04/2019	03/05/2019	41.4	41.7	41.4	41	0.2	0	Good
5	03/05/2019	07/06/2019	31.2	24.4	29.2	28	3.5	12	Good
6	07/06/2019	05/07/2019	30.5	30.6	33.5	32	1.7	5	Good
7	05/07/2019	14/08/2019	25.33	29.9	26.5	28	2.4	8	Good
8	14/08/2019	10/09/2019	31.1	27.2	29.5	29	2.0	7	Good
9	10/09/2019	04/10/2019	34.4	36.2	33.2	35	1.5	4	Good
10	04/10/2019	08/11/2019	37.6	39.3	39.0	39	0.9	2	Good
11	08/11/2019	06/12/2019	43.0	46.6	44.1	45	1.8	4	Good
12	06/12/2019	10/01/2020	35.7	37.3	37.8	37	1.1	3	Good
Average CV								5.0	-

A4.3 Table A4.2 shows that monitoring at LCA-ND there was 'Good' precision at every month of the year. The precision is consistent with the performance of 20% TEA in water tubes supplied by Gradko International in other co-location studies (Defra, 2019).

**Table A4.2: Precision of Duplicate Diffusion Tubes, LCA-ND**

Period	Start Date	End Date	Tube 1	Tube 2	Mean	Standard Deviation	CV	Tube Precision
1	11/01/2019	05/02/2019	44.5	38.7	42	4.1	9.9	Good
2	05/02/2019	07/03/2019	45.8	46.2	46	0.3	0.6	Good
3	07/03/2019	05/04/2019	30.7	31.9	31	0.9	2.7	Good
4	05/04/2019	03/05/2019	29.9	32.4	31	1.8	6	Good
5	03/05/2019	07/06/2019	23.9	23.4	24	0.3	1	Good
6	07/06/2019	05/07/2019	25.4	23.2	24	1.6	7	Good
7	05/07/2019	14/08/2019	25.9	22.2	24	2.6	11	Good
8	14/08/2019	10/09/2019	24.0	26.2	25	1.6	6	Good
9	10/09/2019	04/10/2019	27.6	29.9	29	1.6	6	Good
10	04/10/2019	08/11/2019	34.6	32.3	33	1.6	5	Good
11	08/11/2019	06/12/2019	43.3	43.8	44	0.4	1	Good
12	06/12/2019	10/01/2020	36.5	34.3	35	1.5	4	Good
Average CV							5.0	-

## A5 Appendix 5 – Detailed Trend Analysis

### Nitrogen Dioxide

- A5.1 Figure A.5.1 shows the smooth-trend analyses of 1-hour mean nitrogen dioxide concentrations for LCA-CAH, LCA-ND and six other, nearby monitoring sites (Greenwich Burrage Grove, Greenwich Eltham, Greenwich Woolwich Flyover, Newham Cam Road, Newham Wren Close and Tower Hamlets Blackwall)<sup>5</sup>, over the period 2007 to 2019.
- A5.2 A Theil-Sen analysis has been applied to the data to identify statistically significant trends and slopes, and the results are described in Table A.5.1. There is a statistically significant downward trend in nitrogen dioxide concentrations at LCA-CAH, LCA-ND and all of the six monitoring sites (Greenwich Burrage Grove, Greenwich Eltham, Greenwich Woolwich Flyover, Newham Cam Road, Newham Wren Close and Tower Hamlets Blackwall).

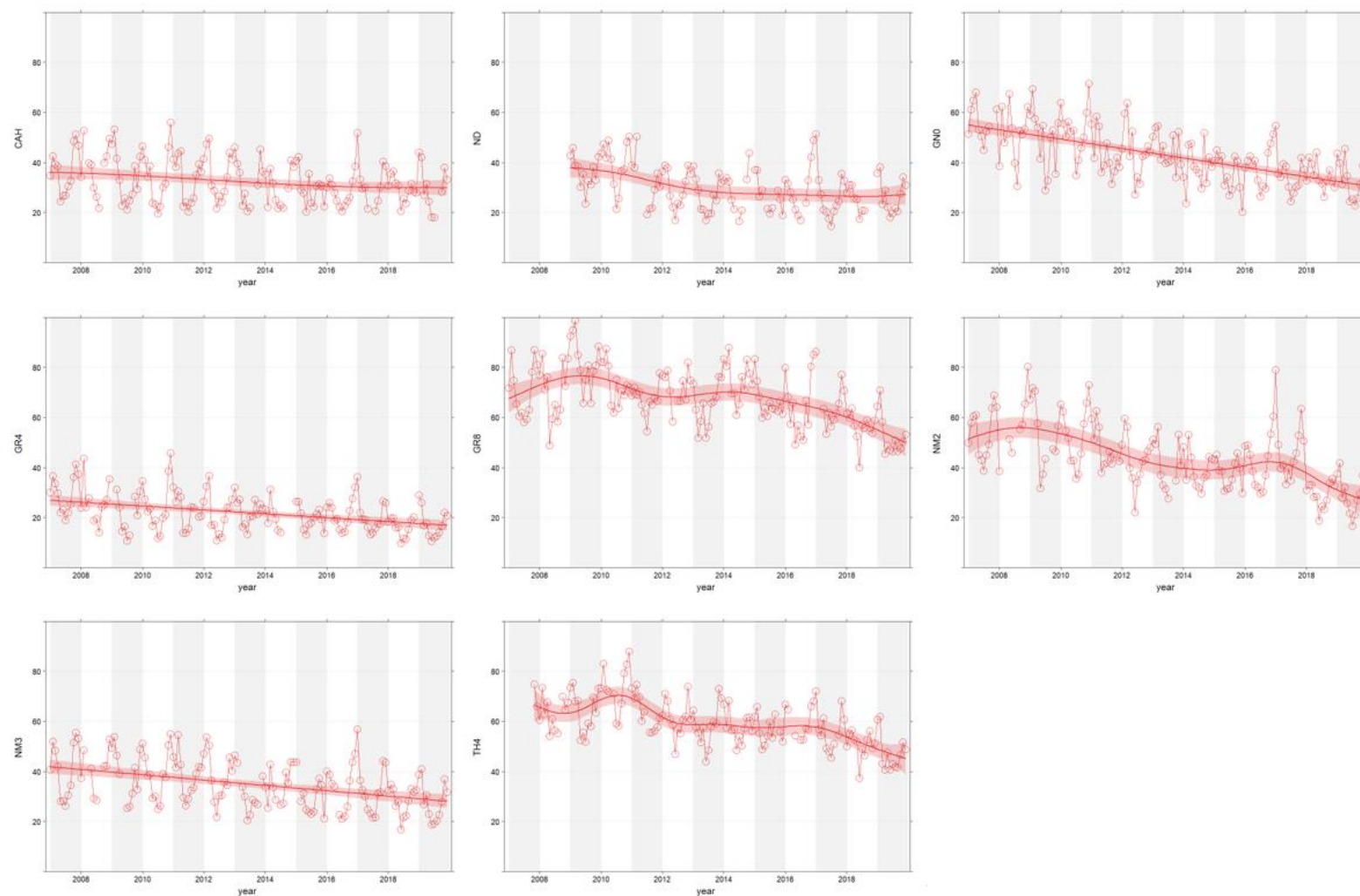
**Table A5.1: Theil-Sen Analysis, Nitrogen Dioxide Concentrations at City Aviation House, Newham Dockside and Other Monitoring Sites, 2007 to 2019**

Monitoring Site	Theil-Sen Analysis <sup>a</sup>	Statistically Significant Trend?
City Aviation House (LCA-CAH)	-0.63 [-1.01, -0.24]	Yes
Newham Dockside (LCA-ND) <sup>b</sup>	-1.15 [-1.65, -0.76]	Yes
Greenwich Burrage Grove	-1.92 [-2.33, -1.56]	Yes
Greenwich Eltham	-0.76 [-1.06, -0.47]	Yes
Greenwich Woolwich Flyover	-1.64 [-2.2, -1.16]	Yes
Newham Cam Road	-1.97 [-2.49, -1.5]	Yes
Newham Wren Close	-1.11 [-1.54, -0.69]	Yes
Tower Hamlets Blackwall	-1.6 [-2.01, -1.18]	Yes

<sup>a</sup> The first value is the slope. The number in brackets is the upper and lower 95<sup>th</sup> percentile confidence interval.

<sup>b</sup> Analysis carried out for 2009 to 2019.

<sup>5</sup> The Poplar site at Tower Hamlets was decommissioned in July 2013. As the data for the period 2007 to 2013 was statistically not significant, it has been removed from this analysis. The Greenwich Millennium Village monitoring site was decommissioned at the end of 2016. As the data for the period of 2007 to 2016 was statistically not significant, it has also been removed from this analysis.



**Figure A.5.1: Smooth Trend Analysis, Hourly Nitrogen Dioxide Concentrations at City Aviation House, Newham Dockside and Other Monitoring Sites, 2007 – 2019 (Left to Right: City Aviation House, Newham Dockside, Greenwich Burrage Grove, Greenwich Eltham, Greenwich Woolwich Flyover, Newham Cam Road, Newham Wren Close, Tower Hamlets Blackwall)**

## Nitrogen Oxides (NO<sub>x</sub>)

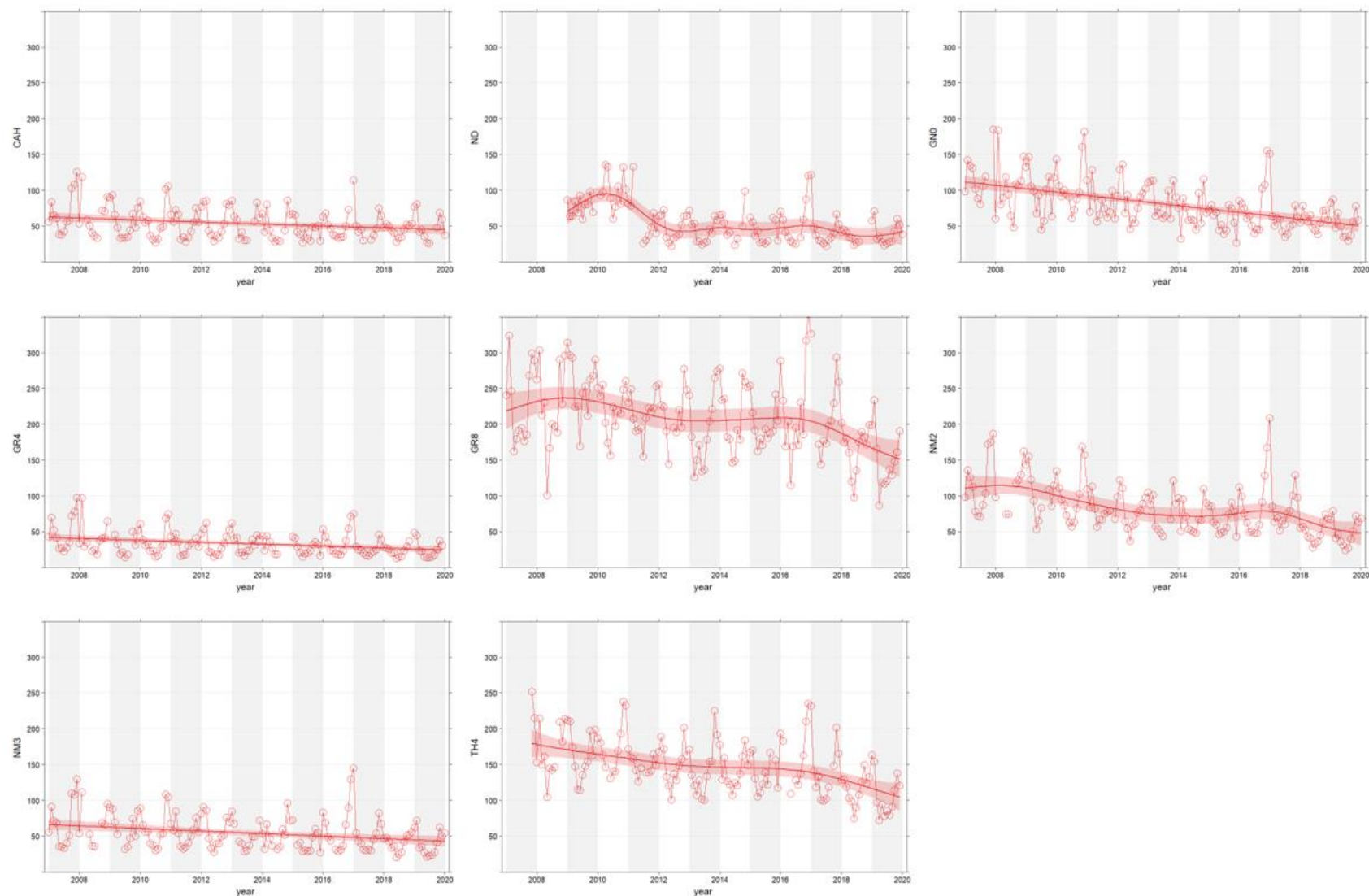
- A5.3 Figure A.5.2 shows the smooth trend analysis of 1-hour mean NO<sub>x</sub> concentrations for LCA-CAH, LCA-ND and other monitoring sites (Greenwich Burrage Grove, Greenwich Eltham, Greenwich Woolwich Flyover, Newham Cam Road, Newham Wren Close, Tower Hamlets Blackwall) for the period 2007 to 2019.
- A5.4 The Theil-Sen analysis, shown in Table A.5.2, indicates a statistically significant downward trend in NO<sub>x</sub> concentrations at LCA-CAH, LCA-ND and all six of the monitoring sites (Greenwich Burrage Grove, Greenwich Eltham, Greenwich Woolwich Flyover, Newham Cam Road, Newham Wren Close and Tower Hamlets Blackwall).

**Table A5.2: Theil-Sen Analysis, NO<sub>x</sub> Concentrations at City Aviation House and Other London Monitoring Sites, 2007 to 2019**

Monitoring Site	Theil-Sen Analysis <sup>a</sup>	Statistically Significant Trend?
City Aviation House (LCA-CAH)	-1.09 [-1.96, -0.31]	Yes
Newham Dockside (LCA-ND) <sup>b</sup>	-3.94 [-5.26, -2.69]	Yes
Greenwich Burrage Grove	-4.62 [-5.77, -3.51]	Yes
Greenwich Eltham	-1.07 [-1.68, -0.49]	Yes
Greenwich Woolwich Flyover	-5.54 [-8.02, -3.43]	Yes
Newham Cam Road	-4.33 [-5.57, -3.23]	Yes
Newham Wren Close	-1.66 [-2.76, -0.82]	Yes
Tower Hamlets Blackwall	-5.04 [-6.65, -3.42]	Yes

<sup>a</sup> The first value is the slope. The value in brackets is the upper and lower 95<sup>th</sup> percentile confidence interval.

<sup>b</sup> Analysis carried out for 2009 to 2019.



**Figure A.5.2: Smooth Trend Analysis, Hourly NO<sub>x</sub> Concentrations at City Aviation House, Newham Dockside and Other London Monitoring Sites, 2007 – 2019 (Left to Right: Aviation House, Newham Dockside, Greenwich Burrage Grove, Greenwich Eltham, Greenwich Woolwich Flyover, Newham Cam Road, Newham Wren Close, Tower Hamlets Blackwall)**



# Annual Performance Report 2019

(Compliance with  
planning permission)



## Annex 8 Sustainability and Biodiversity Action Plan Progress Update

Sustainability and Biodiversity Objective		Indicative Timescale	Status update
EMS2	Update the Airport's current ISO14001 certification to be one of the first UK airports to hold ISO14001:2015 by the end of 2018.	End of 2018	Complete – updated accreditation received Sep 18.
WST1	Implement a site waste management plan and review prior to each phase of CADP.	Prior to each phase of CADP	In place with each contractor prior to works commencing.
WST2	Reduce total waste kg per passenger by 10% (0.05 kg per passenger) from 2013 baseline by the end of December 2018.	End of December 2018	Complete – 0.36 kg per pax in 2013, 0.26kg per pax in 2018 (27% reduction).
WST3	Recycle 70% of total kg of waste by the end of December 2018.	End of December 2018	62% in December 2019. This is not in LCY's direct control, however further measures are in place to increase this rate during 2020.
WST4	Conduct a feasibility study into using sustainable methods for disposing of food waste including biofuel conversion and anaerobic digestion	End of April 2017	Complete and implemented in 2018.
WST5	To create and implement a furnishing recycling programme to help local charities and reduce office waste	End of July 2017	This has been set up with Reyooz, and has been communicated internally.
EC1	Improve employee awareness on energy reduction through two campaigns and training sessions per year.	Ongoing (evidenced yearly)	An article on energy awareness was published in the summer 2019 edition (now called Inside E16) as part of a sustainability double-page. Staff were also engaged in the Carbon Neutrality announcement in December 2019.
EC3	Implementation of a concession energy efficiency and low carbon fit out guide including policy by the end of December 2018.	End of December 2018	Shared with LBN Dec 2018
EC4	Installation of low energy LED runway lighting	End of January 2017	Completed
WH1	Implement a state of the art bird deterrent scheme, a quiet and less intrusive method of bird management at the airport	End of December 2017	A laser deterrent scheme has been installed, with pyrotechnics used only in exceptional circumstances.
WH2	Investigate, produce and make publicly available safeguarding guidance for developers, which specifically details safe methods of increasing local biodiversity within developments without compromising aerodrome safety	End of December 2017	Complete and visible on the website.

Sustainability and Biodiversity Objective		Indicative Timescale	Status update
WH3	Provision of artificial substrate mesh for aquatic colonization and the provision of shelter for fish fry within KGV Dock	Mid 2017	An artificial fish refuge has been installed.
WH4	Continue providing £10,000 per year until 2018 to East Ham Nature Reserve to deliver an educational biodiversity and environmental programme for the local community.	Until 2018	Available and offered throughout 2018 and 2019, however due to a change of management for the nature reserve the programme could not be delivered. Discussions are ongoing to ensure this fund is spend appropriately and the 2018 fund remains available.
WH5	Fund other environmental and biodiversity projects with preference given to areas of nature deficiency. Subject to interest from schools and community groups, options could include (1) funding allotment boxes in SINC; (2) enhancing biodiversity by installing bat boxes or hedgehog homes to protect these key species; or (3) funding biodiversity related projects in schools. Such projects would be subject to a combined annual funding of £5,000 pro-rata from the commencement of CADP until January 2020, or a sum to be agreed between Newham and LCA.	Annually until end of January 2020	Funds were distributed to sponsor biodiversity events in the Royal Docks, including: <ul style="list-style-type: none"> <li>St John's Green – Sow &amp; Grow Events</li> <li>Royal Docks Spring Festival</li> <li>Britannia Village Green Spring Festival</li> <li>Silvertown Sow &amp; Grow Garden Launch</li> <li>Earth Day Biodiversity Celebration</li> <li>Oasis Community Engagement Day</li> <li>Summer Bug Hunt &amp; Picnics</li> <li>SAS (Surfers against sewage) clean up events</li> </ul>
W2	Upgrade and increase the number of meters (from the existing 12) to effectively monitor areas of high water usage	End for December 2017	Survey completed to identify the high areas of use. Additional meters installed at CADP sites and will be installed as new concession spaces open.
W3	Operate within the conditions stipulated in LCA's water discharge permit with regards to BOD (biochemical oxygen demand) and evidence performance.	End of May each year	No breaches were detected throughout 2019. The permit is currently being amended to reflect operational changes as part of CADP.
W5	Create and implement a Flood Management Plan for the Airport in accordance with Environment Agency guidance	End of December 2017	Completed, and a copy shared with LBN.

Sustainability and Biodiversity Objective		Indicative Timescale	Status update
N1	Continued operation of The Airspace & Environment Sub-Committee as part of the LCACC to achieve the agreed objectives established at the inaugural meeting in October 2016 until end of December 2020.	On-going until end of December 2020	In place and ongoing
N2	Continue installation of sound insulation measures to high density tower blocks located in Tower Hamlets as part of the airport Sound Insulation Scheme (SIS)	End of August 2017	Completed August 2018 (although additional properties that came forward late have been treated since)
N3	Implement and maintain a Construction Noise and Vibration Management and Mitigation Strategy (CNVMMS) as required under the CADP planning permission at the commencement of the CADP works.	Ongoing, beginning at the commencement of the CADP works	Implementation of the construction Noise and Vibration Management and Mitigation Strategy (CNVMMS) is ongoing following the commencement of CADP. Noise and vibration monitoring also is being undertaken independently by noise consultants.
SC1	Distribution of a Community leaflet detailing construction activity at least four times a year to the immediate local area for the duration of the CADP works.	On-going throughout the CADP works	Ongoing and issued quarterly throughout 2019.

# Annual Performance Report 2019

(Compliance with  
planning permission)



## Annex 9

List of employers on site  
& construction contractors

**Annex 9**

List of employers on site &amp; construction contractors

**London City Airport**

Annual Performance Report 2019

Airport Partner
LCY
BA CITYFLYER
SSP UK
SKY HANDLING
MENZIES
GSF
AELIA
EUROPCAR
NATS
ARRIVA
SWISSPORT
WHSMITH
PRET A MANGER
TRUMANS
OMNISERV BJ LTD
STOBART AIR
TRAVELEX UK LTD
AEROSPA BEAUTY
GATWICK C LTD
ONE ADVANCED
TUMI
AVIS
DO & CO
JOTA AVIATION
MENZIES (ASIG)
ASPINAL
CAFE NERO
HERTZ
LEVERTECH
MITIE
ALLEN GROUPE
BAGPORT
BP INSTALLAT
COLINGLEN
DIXONS
LOT POLISH AIRLINES
MITIE CARE+CUSTODY
NAT STATISTICS
NEWREST
OMNISERVE
PASCALL WATSON

CADP Main	
BAM Nuttall	GU15 3XW
Bechtel	
Kier	RH10 9NH
Kilnbridge	
8Build	
ACS	
Balfour Beatty	E14 5HU
Dyer & Butler	SG1 2ST
Prater	
J&D Pierce	
CBS	
Dyer & Butler Elec	

CADP	
Atkins	NW1 3AT
Pascall & Watson	EC4V 6ER
BP Installations	
Pell Frischmann	W1U 3PD
RSK	HP3 9RT
Littlewoods	
Fibre Solutions	EN9 1JH
Wilson James	
AIS	
Portakabin	
GSF	
EOD	
Lobster Pictures	BS1 4ND

# Annual Performance Report 2019

(Compliance with  
planning permission)



## Annex 10 Take Off into Work 2019 Statistics

**Project total**

	Vacancy's	Starts	13 week sustained	26 week Sustained	Still in Employment
LCY	48	25	16	19	19
Concessions	54	32	22	16	16
Website	29	1	1	1	1
Total	131	62	39	36	36



# Annual Performance Report 2019

(Compliance with  
planning permission)



## Annex 11 LCA Recruitment Policy

# 1. Applications

1.1.

London City Airport advertise all vacancies on their dedicated career's page on [www.londoncityairport.com/careers](http://www.londoncityairport.com/careers)

1.2.

Jill Pearman, Recruitment Manager (Tel 020 7646 0011) manages this careers page and posts all vacancies.

1.3.

It is a core value of London City Airport to ensure that:

- All applicants are dealt with in a courteous, respectful, fair and diplomatic way
- All applicants are properly informed at all stages of the progress of their application.

1.4.

In some limited specific instances, vacancies of a specialist nature may be advertised on both the LCY website, LinkedIn and via specific aviation or other recruitment agencies and job boards. In this instance, advertising and procedure will remain the same as that for all other vacancies to ensure consistency.

1.5.

Notwithstanding the above, where recruitment for more than one position is initiated simultaneously, London City Airport will advertise such vacancies through a local employment agency (e.g. Newham Workplace and/or others), notify local recruitment centres of such vacancies and advertise through the LCY website.

1.6.

London City Airport works in partnership with the Local Authority (via Newham Workplace) to deliver into-work training for unemployed Newham residents. In some instances, candidates from this training programme may be recruited directly by London City Airport Limited and from Newham Workplace.

1.7.

London City Airport endeavours to employ people living in the vicinity of the airport to share its economic and social benefits. Specifically, the airport has agreed targets with the Local Authority to endeavour to employ:

- 70% of its employees from the "local area"<sup>1</sup>
- including 50% from the London Borough of Newham.

1.8.

A standard online application form is used to assist in filling all vacancies as a way of obtaining the same information from each candidate.

1.9.

Applicants will have the opportunity to register their interest in specific areas of the business and upload their CVs to our website. We will hold this information on our data base for future consideration and will notify applicants directly when relevant roles are available.

1.10.

All documentation relating to selection of new staff (e.g. completed application forms) that is not retained must be disposed of securely (i.e. shredded).

## 2. Selection

2.1.

A candidate will not be appointed without first being interviewed by persons with the authority to select.

2.2.

The purpose of the interview is to:

- Assess the skills and knowledge of the applicant
- Assess the attitude of the applicant
- Identify the strengths and weaknesses not apparent from the application form
- Probe details or inconsistencies submitted by the applicant
- Establish suitability for employment
- Give information about the job and working conditions.

2.3.

All interviewers are trained in Recruitment and Selection Skills and Employment Law to be aware of legal requirements and the Company's equal opportunities policy.

2.4.

All interviews are conducted by two or more authorised people.

2.5.

All interviewers are senior to the vacant position.

2.6.

All interviews are conducted in private and in a place without distractions. Where appropriate, the candidate is shown the environment in which he/she will work if successful.

2.7.

Interviews reflect Company philosophy, observe legal requirements, are conducted courteously and give full details of terms and conditions of employment and benefits.

<sup>1</sup> The "Local Area" is defined by the Planning Agreement to include the 11 East London Boroughs of Newham, Tower Hamlets, Greenwich, Bexley, Lewisham, Southwark, Barking & Dagenham, Havering, Redbridge, Waltham Forest and Hackney, as well as Epping Forest District Council

2.8.  
Written records are kept of all short-listing decisions in case of query at a later stage.

2.9.  
Written records are kept of all interviews conducted using a standard 'Interview Assessment Form'.

2.10.  
Successful applicants will receive a standard offer of appointment letter. This is arranged by Jill Pearman.

### **3.**

## **Equal opportunities policy**

3.1.  
The recruitment policy will aim to select the most suitable person for the job in respect of experience and qualifications and the Company will comply with its equal opportunities policy in this regard.

3.2.  
All recruitment publicity positively encourages applications from suitably qualified, experienced people and avoids any stereotyping of roles.

3.3.  
Vacancies are advertised in a variety of ways to ensure that a fair cross section of potential applicants have access to the advertisement, including via:

- Local Authority "one stop shops" including Newham Workplace, WorkPath and Greenwich Local Labour & Business
- All Job Centre Plus outlets, via their electronic system, Newham College (CIPS) and Anchor House Homeless Charity (entry level roles only).

3.4.  
All vacancies are advertised on London City Airport's website ([www.londoncityairport.com/careers](http://www.londoncityairport.com/careers)).

3.5.  
The application form only includes those questions that are necessary at the initial stages of selection. All questions on the application form are relevant and non-discriminatory

3.6.  
At interview, questions or assumptions about a candidate's personal and domestic circumstances or plans will only be asked where necessary with regard to the role. Where the requirements of the job affect the candidate's personal life (e.g. shift work, unsociable hours or travel) this will be discussed objectively.

## **4.**

## **Selection criteria**

4.1.  
Only those qualifications and skills that are important to the job are criteria for selection. These include, but are not limited to, education and professional qualifications, experience and physical abilities. However, such formal academic or professional qualification requirements may be waived if candidates can demonstrate their suitability for the job by other means including previous experience and a willingness to undergo further training.

4.2.  
All applicants will receive with the application form:

- an outline job description
- a person specification, detailing essential and desirable characteristics

4.3.  
All applicants short-listed for interview will receive interview details in writing.

4.4.  
All candidates who are not short-listed receive a standard rejection email immediately after the short-listing process has been completed.

4.5.  
In the event that two candidates, after interview, equally meet the person specification, the candidate living closer to the airport will normally be given priority.

4.6.  
Positions will only be filled with suitable candidates. Unsuitable candidates will not be appointed.

4.7.  
All unsuccessful short-listed candidates will receive Notification informing them of the result of their assessment / interview usually within 7 working days.

4.8.  
All unsuccessful internal applicants will have a debriefing interview where the reasons for their non appointment will be explained and, where appropriate, general guidance will be given on areas for improvement.

## **5.**

### **Selection tests**

5.1.

Selection tests are used to ensure that applicants have the skills and aptitude requirements for the job.

5.2.

All such tests are valid, reliable and free from gender or race bias and are non-discriminatory. Tests are developed in conjunction with education professionals to ensure a level of suitability to the role applied for.

## **6.**

### **Other criteria**

6.1.

Any requirements in relation to age, ability, experience and qualifications will be applied for the particular vacancy in a non-discriminatory way.

6.2.

All concessionaires/service partners at London City Airport have a contractual obligation to London City Airport to use all reasonable endeavours to recruit locally.

6.3.

London City Airport has an Employers' Forum in which supports on-site partners with a range of issues, one of which is local recruitment.

# Annual Performance Report 2019

(Compliance with  
planning permission)



## Annex 12 LBN confirmation of APR compliance

**From:**  
**To:**  
**Cc:**  
**Subject:** RE: Annual Performance Report 2019 submission  
**Date:** 02 June 2020 11:18:49  
**Attachments:**

---

Thank you Tim – receipt hereby acknowledged.

As advised previously, we will feed back any comments as soon as we can, but by 19<sup>th</sup> June at the latest.

---

**From:**  
**Sent:** 01 June 2020 23:53  
**To:**  
**Cc:**  
  
**Subject:** Annual Performance Report 2019 submission  
**Importance:** High

Dear Dave,

Please see attached the airport's 2019 Annual Performance Report (APR) in both PDF and word format.

The APR is required by the CADP1 Section 106 Schedule 14, para 1.1. to be submitted to LBN by 1 June, and to be published on the LCY and London City Airport Consultative Committee (LCACC) website by 30 June.

The annexes are too big to email and instead are accessible via the link below:

As discussed, we are happy to take on board any officer comments prior to publication on 30 June (ideally 2 working weeks in advance).

Please confirm receipt.

Best,



**Tim Halley**  
**Director of Infrastructure and Planning**



Please consider the environment before printing this e-mail.

Disclaimer: The content of this e-mail is intended solely for the use of the individual or entity to whom it is addressed. If you have received this communication in error, be aware that forwarding it, copying it, or in any way disclosing its content to any other person, is strictly prohibited. If you have received this communication in error, please notify the author by replying to this e-mail immediately.

London City Airport  
City Aviation House  
Royal Docks  
London E16 2PB

Tel: 020 7646 0000  
[LondonCityAirport.com](https://www.LondonCityAirport.com)

