

SCRUTINY LONDON LUTON AIRPORT AIR QUALITY IMPACT
TASK & FINISH GROUP

THURSDAY 6TH FEBRUARY 2020

6.30PM IN COMMITTEE ROOM 2

Supporting documents prepared by Carolyn Cottier in relation to agenda item 6"

Report Written by: Carolyn Cottier

Date: 26 November 2019

Title: Air Pollution Monitoring in Luton - What is Being Measured and Where?

List of Sources I Have Used for Data:

Luton Borough Council's Air Quality Annual Status Report 2016

Luton Borough Council's Air Quality Annual Status Report 2017

Luton Borough Council's Air Quality Annual Status Report 2018

Luton Borough Council's Air Quality Annual Status Report 2019

The Time Periods Covered by the Air Quality Annual Status Reports:

Monitoring for January – December 2015 - See Air Quality Annual Status Report 2016

Monitoring for January – December 2016 - See Air Quality Annual Status Report 2017

Monitoring for January – December 2017 - See Air Quality Annual Status Report 2018

Monitoring for January – December 2018 - See Air Quality Annual Status Report 2019

Pages (within the ASR Report Sources) for Data Used in this Report:

Pages 2, 17-28, 32-39, 48 - Luton Borough Council's Air Quality Annual Status Report 2016

Pages 3, 10-28, 41-49, 67 - Luton Borough Council's Air Quality Annual Status Report 2017

Pages 2-3, 19-33, 46-55, 73 - Luton Borough Council's Air Quality Annual Status Report 2018

Pages 2-3, 17-33, 46, 48, 50, 52, 54-59, 74, 79 - Luton Borough Council's Air Quality Annual Status Report 2019

Statutory Regulations Governing the Reports:

Part IV of the Environment Act 1995 - Local Air Quality Management

Appendix E: Summary of Air Quality Objectives in England

(Source: page 48 AQSR 2016, page 67 AQSR 2017, page 73 AQSR 2018, page 79 AQSR 2019)

Table E.1 – Air Quality Objectives in England Pollutant

Pollutant	Air Quality Objective ⁴	
	Concentration	Measured as
Nitrogen Dioxide (NO ₂)	200 µg/m ³ not to be exceeded more than 18 times a year	1-hour mean
	40 µg/m ³	Annual mean
Particulate Matter (PM ₁₀)	50 µg/m ³ , not to be exceeded more than 35 times a year	24-hour mean

	40 µg/m ³	Annual mean
Sulphur Dioxide (SO ₂)	350 µg/m ³ , not to be exceeded more than 24 times a year	1-hour mean
	125 µg/m ³ , not to be exceeded more than 3 times a year	24-hour mean
	266 µg/m ³ , not to be exceeded more than 35 times a year	15-minute mean

Repeated Statements about Declaration of Air Quality Management Areas on Page 2 of Luton Borough Council's Air Quality Annual Status Reports 2018 & 2019:

2.1 Air Quality Management Areas

“Air Quality Management Areas (AQMAs) are declared when there is an exceedance or likely exceedance of an air quality objective.”

“After declaration, the authority must prepare an Air Quality Action Plan (AQAP) within 12-18 months setting out measures it intends to put in place in pursuit of compliance with the objectives.”

Luton Borough Council's Air Quality Annual Status Report 2019

Pages 2-3, 17-33, 46, 48, 50, 52, 54-59, 74, 79

LOCATIONS OF ALL AIR POLLUTION MONITORING SITES MEASURING FROM JANUARY TO DECEMBER 2018

COLOUR KEY:

- GREEN - INDICATING CORRUPTED DATA
- ORANGE - INDICATING BREACH WITHIN AQMA
- RED – INDICATE BREACH WITH FAILURE TO DECLARE AQMA
- LIGHT RED – INDICATE NEAR BREACH WITH FAILURE TO DECLARE AQMA

Automatic Monitors = TOTAL 3

Total number of Automatic Monitors run by Council (LBC) – 2


Total number of Automatic Monitors run by Airport (LLAL) – 1

Non-Automatic Monitors – TOTAL 63

Total number of Non-Automatic Monitors run by Council (LBC) – 47

Total number of Non-Automatic Monitors run by Airport (LLAL) – 16

Site ID	Automatic Monitoring Sites (In/ Outside AQMA) XY Ordnance Survey Refs	Electoral Ward	Pollutant	Monitoring Technique
CM2 (LUTR; UKA 00005) DEFRA AURN SITE	Luton A505 Roadside Site (AURN) (Not inside AQMA) XOS 505327 YOS 222644 Supertyres, Belper Road, Limbury, Luton, East of England, LU4 8QW	CHALLNEY E NORTH	NO_x (THIS HAS DISAPPE ARED!!); NO _x	Automatic Chemiluminescent NO₂ Annual Mean: 2013 – NDA 2014 - NDA 2015 – 45 2016 – 50 2017 - 44 2018 - 43
LN60 (HB007) Air Quality England	Dunstable Road East (Inside AQMA) XOS 508708 YOS 221352 Stuart Street, Bury Park, Luton, East of England, LU1 1DX	LUTON (D) SOUTH	NO₂; PM₁₀; PM₄; PM_{2.5}; PM₁	Chemiluminescent; FIDAS NO₂ Annual Mean: 2013 – NDA 2014 - NDA 2015 – 43 2016 – 47 2017 - 39 2018 - 37
LA08 (HB006) Air Quality England, Report by Ricardo Energy & Environment	London Luton Airport (Not inside AQMA) XOS 511871 YOS 221142 EasyJet Hangar 89, Airport Way, Wigmore, Luton, East of England, LU2 9LU	WIGMORE	PM₁₀	Beta Attenuation Monitor

				
	Luton Borough Council (LBC) Non-Automatic Monitoring Sites			
LN07	Guildford Street/ Bute Street (Not inside AQMA) XOS 509227 YOS 221455 High Town, Luton, East of England	LUTON (D) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser
LN11	Upper George Street (Not inside AQMA) XOS 508910 YOS 221321 Thornes Chartered Surveyors, Upper George Street, Bury Park, Luton, East of England, LU1 2QU	LUTON (D) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser 2013 - 39 2014 - 37 2015 - 35 2016 - 39
LN15	Armitage Garden (Inside AQMA) XOS 505557 YOS 222325 Armitage Gardens, Lewsey Farm, Luton, East of England, LU4 8RD	CHALLNEY (B) NORTH	NO ₂	Tube NOT collocated with a Continuous Analyser
LN16	Belper Road (Inside AQMA) XOS 505492 YOS 222607 Lewsey Farm, Luton, East of England, LU4 8QR	CHALLNEY (B) NORTH	NO ₂	Tube NOT collocated with a Continuous Analyser
LN17	Wyndham Road (Inside AQMA) XOS 505324 YOS 222812 Wyndham Road, Lewsey Farm, Luton, East of England, LU4 0EA	CHALLNEY (E) NORTH	NO ₂	Tube NOT collocated with a Continuous Analyser 2014 - 41 2015 - 36 2016 - 39
LN18	Copperfields (Inside AQMA) XOS 505014 YOS 223538 Copperfields, Lewsey Farm, Luton, East of England, LU4 0JY	CHALLNEY (E) NORTH	NO ₂	Tube NOT collocated with a Continuous Analyser
LN22	1 Mistletoe Hill (Not inside AQMA) XOS 511341 YOS 221864 Mistletoe Hill, Wigmore, Luton, East of England, LU2 9HF	CRAWLEY (A) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser
LN23	Eaton Green Road 1 (Not inside AQMA) XOS 511377 YOS 221814 Mistletoe Hill, Wigmore, Luton, East of England, LU2 9HF	CRAWLEY (A) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser 2012 - 31 2013 - 32 2014 - 32 2015 - 32 2016 - 36
LN24	19 Barnston Close (Not inside AQMA) XOS 511902 YOS 222144 Barnston Close, Wigmore, Luton, East of England, LU2 9RZ	WIGMORE (C) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser
LN25	Eaton Green Road 2 (Not inside AQMA) XOS 511893 YOS 222068 Eaton Green Road, Wigmore, Luton, East of England, LU2 9ST	CRAWLEY (A) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser

LN26	8 Keeble Close (Not inside AQMA) XOS 512109 YOS 222234 Keeble Close, Wigmore, Luton, East of England, LU2 9RT	WIGMORE (C) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser
LN27	Eaton Green Road 3 (Not inside AQMA) XOS 512134 YOS 222198 Eaton Green Road, Wigmore, Luton, East of England, LU2 9ST	CRAWLEY (A) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser
LN28	Caddington Road (Not inside AQMA) XOS 507798 YOS 219832 Luton Road, Farley Hill, Luton, East of England, LU1 4AA	FARLEY (C) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser 2012- 42 2013 - 44 2014 - 49 2015 - 43 2016 – 46
LN52	Dunstable Rd/Cardigan St Residential (Inside AQMA) XOS 508689 YOS 221379 S E Morgan Pharmacy, Dunstable Road, Bury Park, Luton, East of England, LU1 1BE	SOUTH (D) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser 2012- 46 2013 - 54 2014 - 52 2015 - 46 2016 – 49
LN53	3rd Floor Bagshawe Court F.F. (Not inside AQMA) XOS 507717 YOS 219923 The Stockwood Park Academy, Rotheram Avenue, Farley Hill, Luton, East of England, LU1 5PP	FARLEY (D) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser
LN54	M1 Corner Bagshawe Court F.F. (Not inside AQMA) XOS 507712 YOS 219915 The Stockwood Park Academy, Rotheram Avenue, Farley Hill, Luton, East of England, LU1 5PP	FARLEY (D) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser
LN55	M1 Corner Wyatt Court F.F. (Not inside AQMA) XOS 507732 YOS 219886 Farley Fields, Farley Hill, Luton, East of England, LU1 4AA	FARLEY (D) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser
LN56	20 Wyatt Court F.F. (Not inside AQMA) XOS 507747 YOS 219894 Farley Fields, Farley Hill, Luton, East of England, LU1 4AA	FARLEY (D) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser
LN57	Hitchin Rd/Cannon Lane Resi 1 (Not inside AQMA) XOS 510747 YOS 224311 Olympic Court, 1-33, Cannon Lane, Stopsley, Luton, East of England, LU2 8DA	STOPSLEY (B) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser
LN58	Hitchin Rd/Cannon Lane Resi 2 (Not inside AQMA) XOS 510747 YOS 224311 Olympic Court, 1-33, Cannon Lane, Stopsley, Luton, East of England, LU2 8DA	STOPSLEY (B) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser NO ₂ Annual Mean: 2013 – NDA 2014 - 33 2015 – 31 2016 – 32 2017 - NDA




				2018 - NDA
LN59	Hitchin Rd/Cannon Lane Resi 3 (Not inside AQMA) XOS 510747 YOS 224311 Olympic Court, 1-33, Cannon Lane, Stopsley, Luton, East of England, LU2 8DA	STOPSLEY (B) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser
LN61	CRAQM 2A (Inside AQMA) XOS 508708 YOS 221352 Stuart Street, Bury Park, Luton, East of England, England, LU1 1DX	BISCOT (B) SOUTH	NO ₂	Tube IS collocated with a Continuous Analyser 2012-2014 - NDA 2015 - 43 2016 – 45
LN62	CRAQM 2B (Inside AQMA) XOS 508708 YOS 221352 Stuart Street, Bury Park, Luton, East of England, England, LU1 1DX	BISCOT (B) SOUTH	NO ₂	Tube IS collocated with a Continuous Analyser 2012-2014 - NDA 2015 - 43 2016 – 46
LN63	CRAQM 2C (Inside AQMA) XOS 508708 YOS 221352 Stuart Street, Bury Park, Luton, East of England, England, LU1 1DX	BISCOT (B) SOUTH	NO ₂	Tube IS collocated with a Continuous Analyser 2012-2014 - NDA 2015 - 41 2016 – 46
LN64	Park Viaduct - Park Street (Not inside AQMA) XOS 509563 YOS 220952 Simple Claims, Park Viaduct, Park Town, Luton, East of England, LU1 3HW	SOUTH (D) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser
LN65	Park Viaduct - Queens Close (Not inside AQMA) XOS 509486 YOS 220865 Park Viaduct, Park Town, Luton, East of England, LU1 3BS	SOUTH (C) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser
LN66	Park Viaduct (Inside AQMA) XOS 509288 YOS 220925 Park Viaduct, Park Town, Luton, East of England, LU1 3UZ	SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser 2012-2014 - NDA 2015 - 37 2016 - 39
LN67	Castle Street (Not inside AQMA) XOS 509083 YOS 220709 Costcutter, Castle Street, New Town, Luton, East of England, LU1 3AG	SOUTH (B) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser 2012-2014 - NDA 2015 - 44 2016 - 48
LN68	London Road (Not inside AQMA) XOS 508969 YOS 220487 London Road, New Town, Luton, East of England, LU1 3UE	SOUTH (F) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser 2012-2014 - NDA 2015 - 32 2016 - 35
LN69	John Street (Not inside AQMA) XOS 509326 YOS 221357 Hair @ Amy's, John Street, High Town, Luton, East of England, LU1 2JG	SOUTH (D) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser
LN70	Crawley Green Road (Not inside AQMA) XOS 509813 YOS 221161 Crawley Green Road, Park Town, Luton, East of England, LU1 3LP	WIGMORE (B) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser

LN71	Crescent Road (Not inside AQMA) XOS 509549 YOS 221623 Crescent Road, High Town, Luton, East of England, LU2 0AB	HIGH TOWN (A) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser
LN72	Hucklesby Way (Not inside AQMA) XOS 508937 YOS 221745 A6, High Town, Luton, East of England, LU2 7PB	HIGH TOWN (A) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser
LN73	Mill Street (Not inside AQMA) XOS 508959 YOS 221633 Mieso, Mill Street, High Town, Luton, East of England, LU1 2NA	SOUTH (D) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser 2015 - 37 2016- 44
LN74	Dunstable Road – Bury Park (Not inside AQMA) XOS 508165 YOS 222002 Oakdale Methodist Church, Dunstable Road, Bury Park, Luton, East of England, LU4 8FG	BISCOT (B) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser 2015 - 39 2016 - 41
LN75	New Bedford Road (Not inside AQMA) XOS 508745 YOS 222122 Cromwell Road, Bury Park, Luton, East of England, LU3 1DP	BISCOT (B) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser 2015 - 38 2016 - 41
LN76	Leagrave Road (Not inside AQMA) XOS 507574 YOS 222948 Leagrave Road, Bury Park, Luton, East of England, LU3 1RG	BISCOT (C) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser
LN77	Marsh Road (Not inside AQMA) XOS 506496 YOS 224018 Marsh Road, Limbury, Luton, East of England, LU3 2RW	LIMBURY (A) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser
LN78	Hibbert Street (Not inside AQMA) XOS 509109 YOS 220676 Hibbert Street, New Town, Luton, East of England, LU1 3UU	SOUTH (B) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser
LN79	Castle Street 2 (Not inside AQMA) XOS 509050 YOS 220634 DBM Motorcycles, Castle Street, New Town, Luton, East of England, LU1 3AL	SOUTH (B) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser
LN80	Windsor Street (Not inside AQMA) XOS 509038 YOS 220719 H B Curry, Windsor Street, New Town, Luton, East of England, LU1 3UB	SOUTH (B) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser
LN81	Bank Close (Inside AQMA) XOS 505034 YOS 223729		NO ₂	Tube NOT collocated with a Continuous Analyser
LN82	11 Withy Close (Inside AQMA) XOS 504828 YOS 223999		NO ₂	Tube NOT collocated with a Continuous Analyser





LN83	b/h 9 Copperfields (Inside AQMA) XOS 505116 YOS 223467		NO ₂	Tube NOT collocated with a Continuous Analyser
LN84	97 Lime Avenue (Inside AQMA) XOS 505230 YOS 223304		NO ₂	Tube NOT collocated with a Continuous Analyser
LN85	26 Belper Road (Inside AQMA) XOS 505481 YOS 222545		NO ₂	Tube NOT collocated with a Continuous Analyser
LN86	Bradley Road (by M1 Bridge) (Inside AQMA) XOS 505586 YOS 222235		NO ₂	Tube NOT collocated with a Continuous Analyser
London Luton Airport (LLA) Non-Automatic Monitoring Sites				
LA01	Terminal Patio (Not inside AQMA) XOS 511847 YOS 221336 Luton Airport, Airport Way, Wigmore, Luton, East of England, LU2 9LR	AIRPORT/ WIGMORE	NO ₂	Tube NOT collocated with a Continuous Analyser
LLA 1	Outside Zone 2 XOS 511903 YOS 221278		NO ₂	Tube NOT collocated with a Continuous Analyser
ALTERED/ NEW POSITION LLA 2 (LA02)	Airport Approach Road (Not inside AQMA) XOS 511579 YOS 220960 			
PREVIOUS POSITION LLA 2 (LA02)	Airport Approach Road (Not inside AQMA) XOS 511586 YOS 220978 Airport Way, Wigmore, Luton, East of England, LU2 9GP 	AIRPORT/ WIGMORE	NO ₂	Tube NOT collocated with a Continuous Analyser 2012 – 40 2016 - 40
ALTERED/ NEW POSITION LLA 3 (LA03)	Runway Threshold Western (Not inside AQMA) XOS 511170 YOS 220436 	AIRPORT/ WIGMORE	NO ₂	Tube NOT collocated with a Continuous Analyser
PREVIOUS POSITION LLA 3 (LA03)	Runway Threshold Western (Not inside AQMA) XOS 511156 YOS 220437 A1081, Park Town, Luton, East of England, England, LU2 9NH	AIRPORT/ WIGMORE	NO ₂	Tube NOT collocated with a Continuous Analyser

				
ALTERED/ NEW POSITION LLA 4 (LA04)	Runway Threshold Eastern (Not inside AQMA) XOS 513644 YOS 221207 	AIRPORT/ WIGMORE	NO ₂	Tube NOT collocated with a Continuous Analyser
PREVIOUS POSITION LLA 4 (LA04)	Runway Threshold Eastern (Not inside AQMA) XOS 513634 YOS 221198 King's Walden, North Hertfordshire, Hertfordshire, East of England, England, LU2 8PA 	AIRPORT/ WIGMORE	NO ₂	Tube NOT collocated with a Continuous Analyser
ALTERED/ NEW POSITION LLA 5 (LA05)	Ajacent to Stand 5 (Old name: Runway Apron) (Not inside AQMA) XOS 511711 YOS 221337 	AIRPORT/ WIGMORE	NO ₂	Tube NOT collocated with a Continuous Analyser 2012 – 46 2016 - 43
PREVIOUS POSITION LLA 5 (LA05)	 Runway Apron (Not inside AQMA) XOS 511703 YOS 221320 Luton Airport, Airport Way, Wigmore, Luton, East of England, LU2 9LR  	AIRPORT/ WIGMORE	NO₂	Tube NOT collocated with a Continuous Analyser 2012 – 46 2016 - 43
ALTERED/ NEW POSITION LLA 6 (LA06)	President Way Jct (Not inside AQMA) XOS 511682 YOS 221727 	AIRPORT/ WIGMORE	NO ₂	Tube NOT collocated with a Continuous Analyser
PREVIOUS POSITION	President Way Jct (Not inside AQMA)	AIRPORT/ WIGMORE	NO ₂	Tube NOT collocated with a Continuous Analyser


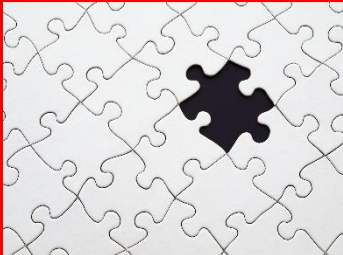
LLA 6 (LA06)	XOS 511645 YOS 221679 Percival Way, Wigmore, Luton, East of England, LU2 9PF 			
ALTERED/ NEW POSITION LLA 7 (LA07)	Drop Off Zone XOS 512166 YOS 221226 		NO ₂	Tube NOT collocated with a Continuous Analyser
PREVIOUS POSITION LLA 7 (LA07)	Terminal Car Park (Not inside AQMA) XOS 512181 YOS 221352 London Luton Airport, Percival Way, Wigmore, Luton, East of England, LU2 9LY 	AIRPORT/ WIGMORE	NO ₂	Tube NOT collocated with a Continuous Analyser
ALTERED/ NEW POSITION LLA 8 (LA08)	BAM Co-located (Not inside AQMA) XOS 511867 YOS 221148 		NO ₂	Tube NOT collocated with a Continuous Analyser
PREVIOUS POSITION LLA 8 (LA08)	BAM Collocated (Not inside AQMA) XOS 511871 YOS 221142 EasyJet Hangar 89, Airport Way, Wigmore, Luton, East of England, LU2 9LU 	AIRPORT/ WIGMORE	NO ₂	Tube NOT collocated with a Continuous Analyser
ALTERED/ NEW POSITION LLA 9 (LA09)	Stagenhoe Bottom Farm (Not inside AQMA) XOS 517602 YOS 222572 		NO ₂	Tube NOT collocated with a Continuous Analyser

PREVIOUS POSITION LLA 9 (LA09)	Stagenhoe Bottom Farm (Not inside AQMA) XOS 517637 YOS 222554 St Paul's Walden, North Hertfordshire, Hertfordshire, East of England, SG4 8NW 		NO ₂	Tube NOT collocated with a Continuous Analyser
ALTERED/ NEW POSITION LLA 10 (LA10)	Grove Farm Slip End (Not inside AQMA) XOS 507667 YOS 217744 		NO ₂	Tube NOT collocated with a Continuous Analyser
PREVIOUS POSITION LLA 10 (LA10)	Grove Farm Slip End (Not inside AQMA) XOS 507623 YOS 217724 Limekiln Plantation, Half Moon Lane, Slip End, Pepperstock, Central Bedfordshire, LU1 4LW 		NO ₂	Tube NOT collocated with a Continuous Analyser
LA14	Stand 60 Luton Airport (Not inside AQMA) XOS 511861 YOS 221579 Luton Airport, Airport Way, Wigmore, Luton, East of England, LU2 9LR	AIRPORT/ WIGMORE	NO ₂	Tube NOT collocated with a Continuous Analyser 2012 -39 2016 - 39
LA15	Eaton Green Road (Not inside AQMA) XOS 511899 YOS 222051 Eaton Green Road, Wigmore, Luton, East of England, LU2 9ST, United Kingdom	CRAWLEY (A) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser
LA16	Set Down Area (Not inside AQMA) XOS 511954 YOS 221313 Bay D Arriva Local, Airport Way, Wigmore, Luton, East of England, LU2 9NE	AIRPORT/ WIGMORE	NO ₂	Tube NOT collocated with a Continuous Analyser 2014 – 37 2016 - 41
LA17	Dane End (Not inside AQMA) XOS 513125 YOS 220664 Hyde, Luton, East of England, England, LU2 8PE	HYDE/ LUTON	NO ₂	Tube NOT collocated with a Continuous Analyser
LA18	Breachwood Green (Not inside AQMA) XOS 515053 YOS 221778	BREACHW OOD	NO ₂	Tube NOT collocated with a Continuous Analyser

	Chapel Road, King's Walden, North Hertfordshire, Hertfordshire, East of England, SG4 8NX	GREEN/ HERTS		
LA19	Kensworth (Not inside AQMA) XOS 502848 YOS 218161 Kensworth, Central Bedfordshire, East of England, LU6 2PJ	KENSWOR TH/ BEDFORD SHIRE	NO ₂	Tube NOT collocated with a Continuous Analyser

ALTERED/ NEW POSITION NEW CODE: LLA 11 (OLD CODE: LA17)	Dane End (Not inside AQMA) XOS 513140 YOS 220669 	HYDE/ LUTON	NO ₂	Tube NOT collocated with a Continuous Analyser
PREVIOUS POSITION NEW CODE: LLA 11 (OLD CODE: LA17)	Dane End (Not inside AQMA) XOS 513125 YOS 220664 Hyde, Luton, East of England, England, LU2 8PE 	HYDE/ LUTON	NO ₂	Tube NOT collocated with a Continuous Analyser
NEW CODE in ASR 2019: LLA 12 (OLD CODE in ASR 2018: LA14)	Adjacent to Stand 60 (New Name) (Not inside AQMA) XOS 511886 YOS 221566 	AIRPORT/ WIGMORE	NO ₂	NEW CODE: LLA 11 (OLD CODE: LA17)
OLD CODE in ASR 2018: LA14 (NEW CODE in ASR 2019 LLA 12)	Stand 60 Luton Airport (Old Name) (Not inside AQMA) XOS 511861 YOS 221579 Luton Airport, Airport Way, Wigmore, Luton, East of England, LU2 9LR 	AIRPORT/ WIGMORE	NO ₂	Tube NOT collocated with a Continuous Analyser 2012 - 39 2016 - 39

NEW CODE: LLA 13 (OLD CODE: LA15)	Eaton Green Road (Not inside AQMA) XOS 511901 YOS 222055 		NO ₂	Tube NOT collocated with a Continuous Analyser
OLD CODE: LA15 (NEW CODE LLA 13)	Eaton Green Road (Not inside AQMA) XOS 511899 YOS 222051 Eaton Green Road, Wigmore, Luton, East of England, LU2 9ST, United Kingdom 	CRAWLEY (A) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser
LLA 14	Undercroft Access Road XOS 511995 YOS 221316 Drop and Meet Parking, Airport Way, Wigmore, Luton, LU2 9LY		NO ₂	Tube NOT collocated with a Continuous Analyser
LLA 15	Eaton Green Road – EasyJet CP XOS 511168 YOS 221706 Luton Airport CarParkz, Eaton Green Road, Wigmore, Luton, LU2 9ST		NO ₂	Tube NOT collocated with a Continuous Analyser
LLA 16	Exit Road Plaza XOS 512158 YOS 221087 Short Term Parking, Airport Way, Wigmore, Luton, LU2 9LY		NO ₂	Tube NOT collocated with a Continuous Analyser
LLA 17	A1081 New Airport Way 1 XOS 509489 YOS 219237 Kidney Wood, Airport Way, Hyde, Pepperstock, Central Bedfordshire, LU1 3LG		NO ₂	Tube NOT collocated with a Continuous Analyser
LLA 18	A1081 New Airport Way 2 XOS 510991 YOS 220497 New Airport Way, Park Town, Luton, LU2 9NH		NO ₂	Tube NOT collocated with a Continuous Analyser
LA16	Set Down Area (Not inside AQMA) XOS 511954 YOS 221313 Bay D Arriva Local, Airport Way, Wigmore, Luton, East of England, LU2 9NE	AIRPORT/ WIGMORE	NO₂	Tube NOT collocated with a Continuous Analyser 2014 – 37 2016 - 41
LA17	Dane End (Not inside AQMA) XOS 513125 YOS 220664 Hyde, Luton, East of England, England, LU2 8PE	HYDE/ LUTON	NO₂	Tube NOT collocated with a Continuous Analyser





				
LA18	Breachwood Green (Not inside AQMA) XOS 515053 YOS 221778 Chapel Road, King's Walden, North Hertfordshire, Hertfordshire, East of England, SG4 8NX	BREACHW OOD GREEN/ HERTS	NO ₂	Tube NOT collocated with a Continuous Analyser 2013 - NDA 2014 - NDA 2015 - NDA 2016 - 14 2017 - 14
LA19	Kensworth (Not inside AQMA) XOS 502848 YOS 218161 Kensworth, Central Bedfordshire, East of England, LU6 2PJ	KENSWOR TH/ BEDFORD SHIRE	NO ₂	Tube NOT collocated with a Continuous Analyser 2013 - NDA 2014 - NDA 2015 - NDA 2016 - 12 2017 - NDA
NEEDS OS: LA20	Short Term Car Park What is the OS??? – Why is the OS missing on page 25 for this one?? 		NO ₂	Tube NOT collocated with a Continuous Analyser 2013 - NDA 2014 - NDA 2015 - NDA 2016 - NDA 2017 - 41

Luton Borough Council's Air Quality Annual Status Report 2018

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LOCATIONS OF ALL AIR POLLUTION MONITORING SITES MEASURING FROM JANUARY TO DECEMBER 2017

COLOUR KEY:

-  GREEN - INDICATING CORRUPTED DATA
-  ORANGE - INDICATING BREACH WITHIN AQMA
-  RED – INDICATE BREACH WITH FAILURE TO DECLARE AQMA
-  LIGHT RED – INDICATE NEAR BREACH WITH FAILURE TO DECLARE AQMA



SHOULD BE IN AQMA BUT ISN'T!



BREACHING LIMITS AND IN AQMA

Automatic Monitors = TOTAL 3

Total number of Automatic Monitors run by Council (LBC) – 2

Total number of Automatic Monitors run by Airport (LLAL) – 1

Non-Automatic Monitors – TOTAL 58

Total number of Non-Automatic Monitors run by Council (LBC) – 41

Total number of Non-Automatic Monitors run by Airport (LLAL) – 17

January – December 2017 (ASR 2018)

There are 61 Air pollution Monitors in Total.







- 14 ARE
BREACHING AND SHOULD BE DECLARED AS AQMAS BUT HAVE NOT BEEN!








- 7 ARE BREACHING LIMITS AND ARE IN
AQMAS










- 21 BREACHES / OVER ONE THIRD BREACHING TOTAL
BREACHING OUT OF 61.



Site ID	Automatic Monitoring Sites (In/ Outside AQMA) XY Ordnance Survey Refs	Electoral Ward	Pollutant	Monitoring Technique	
CM2 (LUTR; UKA 00605) DEFRA AUN SITE	Luton A505 Roadside Site (AURN) (Not inside AQMA) XOS 505927 YOS 222644 Supertyres, Belper Road, Limbury, Luton, East of England, LU4 8QW	CHALLNEY B NORTH	NO _x ; NO ₂ ;	Automatic Chemiluminescent NO ₂ Annual Mean: 2013 – NDA 2014 - NDA 2015 – 45 2016 – 50 2017 – 44	
LN60 (HB007) Air Quality England	Dunstable Road East (Inside AQMA) XOS 508708 YOS 221352 Stuart Street, Bury Park, Luton, East of England, LU1 1DX	LUTON (D) SOUTH	NO ₂ ; PM ₁₀ ; PM ₄ ; PM _{2.5} ; PM ₁	Chemiluminescent; FIDAS NO ₂ Annual Mean: 2013 – NDA 2014 - NDA 2015 – 43 2016 – 47 2017 – 39	
LA08 (HB006) Air Quality England, Report by Ricardo Energy & Environment	London Luton Airport (Not inside AQMA) XOS 511871 YOS 221142 EasyJet Hangar 89, Airport Way, Wigmore, Luton, East of England, LU2 9LU	WIGMORE	PM ₁₀	Beta Attenuation Monitor	
	Luton Borough Council (LBC) Non-Automatic Monitoring Sites				
LN07	Guildford Street/ Bute Street (Not inside AQMA) XOS 509227 YOS 221455 High Town, Luton, East of England	LUTON (D) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser	
LN11	Upper George Street (Not inside AQMA) XOS 508910 YOS 221321 Thornes Chartered Surveyors, Upper George Street, Bury Park, Luton, East of England, LU1 2QU	LUTON (D) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser NO ₂ Annual Mean: 2013 - 39 2014 – 37 2015 – 35 2016 – 39 2017 - 34	
LN15	Armitage Garden (Inside AQMA) XOS 505557 YOS 222325 Armitage Gardens, Lewsey Farm, Luton, East of England, LU4 8RD	CHALLNEY (B) NORTH	NO ₂	Tube NOT collocated with a Continuous Analyser	
LN16	Belper Road (Inside AQMA) XOS 505492 YOS 222607 Lewsey Farm, Luton, East of England, LU4 8QR	CHALLNEY (B) NORTH	NO ₂	Tube NOT collocated with a Continuous Analyser	
LN17	Wyndham Road (Inside AQMA) XOS 505324 YOS 222812 Wyndham Road, Lewsey Farm, Luton, East of England, LU4 0EA	CHALLNEY (E) NORTH	NO ₂	Tube NOT collocated with a Continuous Analyser NO ₂ Annual Mean: 2013 - 39 2014 – 41 2015 – 36 2016 – 39 2017 – 36	



LN18	Copperfields (Inside AQMA) XOS 505014 YOS 223538 Copperfields, Lewsey Farm, Luton, East of England, LU4 0JY	CHALLNEY (E) NORTH	NO ₂	Tube NOT collocated with a Continuous Analyser	
LN22	1 Mistletoe Hill (Not inside AQMA) XOS 511341 YOS 221864 Mistletoe Hill, Wigmore, Luton, East of England, LU2 9HF	CRAWLEY (A) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser	
LN23	Eaton Green Road 1 (Not inside AQMA) XOS 511377 YOS 221814 Mistletoe Hill, Wigmore, Luton, East of England, LU2 9HF	CRAWLEY (A) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser NO ₂ Annual Mean: 2012 - 31 2013 - 32 2014 - 32 2015 - 32 2016 - 36 2017 - 37	
LN24	19 Barnston Close (Not inside AQMA) XOS 511902 YOS 222144 Barnston Close, Wigmore, Luton, East of England, LU2 9RZ	WIGMORE (C) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser	
LN25	Eaton Green Road 2 (Not inside AQMA) XOS 511893 YOS 222068 Eaton Green Road, Wigmore, Luton, East of England, LU2 9ST	CRAWLEY (A) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser	
LN26	8 Keeble Close (Not inside AQMA) XOS 512109 YOS 222234 Keeble Close, Wigmore, Luton, East of England, LU2 9RT	WIGMORE (C) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser	
LN27	Eaton Green Road 3 (Not inside AQMA) XOS 512134 YOS 222198 Eaton Green Road, Wigmore, Luton, East of England, LU2 9ST	CRAWLEY (A) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser	
LN28	Caddington Road (Not inside AQMA) XOS 507798 YOS 219832 Luton Road, Farley Hill, Luton, East of England, LU1 4AA	FARLEY (C) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser NO ₂ Annual Mean: 2012- 42 2013 - 44 2014 - 49 2015 - 43 2016 - 46 2017 - 46	
LN52	Dunstable Rd/Cardigan St Residential (Inside AQMA) XOS 508689 YOS 221379 S E Morgan Pharmacy, Dunstable Road, Bury Park, Luton, East of England, LU1 1BE	SOUTH (D) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser NO ₂ Annual Mean: 2012- 46 2013 - 54 2014 - 52 2015 - 46 2016 - 49 2017 - 43	


LN53	3rd Floor Bagshawe Court F.F. (Not inside AQMA) XOS 507717 YOS 219923 The Stockwood Park Academy, Rotheram Avenue, Farley Hill, Luton, East of England, LU1 5PP	FARLEY (D) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser	
LN54	M1 Corner Bagshawe Court F.F. (Not inside AQMA) XOS 507712 YOS 219915 The Stockwood Park Academy, Rotheram Avenue, Farley Hill, Luton, East of England, LU1 5PP	FARLEY (D) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser	
LN55	M1 Corner Wyatt Court F.F. (Not inside AQMA) XOS 507732 YOS 219886 Farley Fields, Farley Hill, Luton, East of England, LU1 4AA	FARLEY (D) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser	
LN56	20 Wyatt Court F.F. (Not inside AQMA) XOS 507747 YOS 219894 Farley Fields, Farley Hill, Luton, East of England, LU1 4AA	FARLEY (D) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser	
LN57	Hitchin Rd/Cannon Lane Resi 1 (Not inside AQMA) XOS 510747 YOS 224311 Olympic Court, 1-33, Cannon Lane, Stopsley, Luton, East of England, LU2 8DA	STOPSLEY (B) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser	
LN58	Hitchin Rd/Cannon Lane Resi 2 (Not inside AQMA) XOS 510747 YOS 224311 Olympic Court, 1-33, Cannon Lane, Stopsley, Luton, East of England, LU2 8DA	STOPSLEY (B) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser	
LN59	Hitchin Rd/Cannon Lane Resi 3 (Not inside AQMA) XOS 510747 YOS 224311 Olympic Court, 1-33, Cannon Lane, Stopsley, Luton, East of England, LU2 8DA	STOPSLEY (B) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser	
LN61	CRAQM 2A (Inside AQMA) XOS 508708 YOS 221352 Stuart Street, Bury Park, Luton, East of England, England, LU1 1DX	BISCOT (B) SOUTH	NO ₂	Tube IS collocated with a Continuous Analyser NO ₂ Annual Mean: 2012 – NDA 2013- NDA 2014 - NDA 2015 - 43 2016 – 45 2017 - 43	
LN62	CRAQM 2B (Inside AQMA) XOS 508708 YOS 221352 Stuart Street, Bury Park, Luton, East of England, England, LU1 1DX	BISCOT (B) SOUTH	NO ₂	Tube IS collocated with a Continuous Analyser NO ₂ Annual Mean: 2012 – NDA 2013- NDA 2014 - NDA 2015 - 43 2016 – 46 2017 - 41	

LN63	CRAQM 2C (Inside AQMA) XOS 508708 YOS 221352 Stuart Street, Bury Park, Luton, East of England, England, LU1 1DX	BISCOT (B) SOUTH	NO ₂	Tube IS collocated with a Continuous Analyser NO ₂ Annual Mean: 2012 – NDA 2013- NDA 2014 - NDA 2015 - 41 2016 – 46 2017 - 42	
LN64	Park Viaduct - Park Street (Not inside AQMA) XOS 509563 YOS 220952 Simple Claims, Park Viaduct, Park Town, Luton, East of England, LU1 3HW	SOUTH (D) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser	
LN65	Park Viaduct - Queens Close (Not inside AQMA) XOS 509486 YOS 220865 Park Viaduct, Park Town, Luton, East of England, LU1 3BS	SOUTH (C) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser	
LN66	Park Viaduct (Inside AQMA) XOS 509288 YOS 220925 Park Viaduct, Park Town, Luton, East of England, LU1 3UZ	SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser NO ₂ Annual Mean: 2012 – NDA 2013- NDA 2014 - NDA 2015 - 37 2016 – 39 2017 - 39	
LN67	Castle Street (Not inside AQMA) XOS 509083 YOS 220709 Costcutter, Castle Street, New Town, Luton, East of England, LU1 3AG	SOUTH (B) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser NO ₂ Annual Mean: 2012 – NDA 2013- NDA 2014 - NDA 2015 - 44 2016 – 48 2017 - 42	
LN68	London Road (Not inside AQMA) XOS 508969 YOS 220487 London Road, New Town, Luton, East of England, LU1 3UE	SOUTH (F) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser NO ₂ Annual Mean: 2012 – NDA 2013- NDA 2014 - NDA 2015 - 32 2016 – 35 2017 - 33	
LN69	John Street (Not inside AQMA) XOS 509326 YOS 221357 Hair @ Amy's, John Street, High Town, Luton, East of England, LU1 2JG	SOUTH (D) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser	
LN70	Crawley Green Road (Not inside AQMA) XOS 509813 YOS 221161	WIGMORE (B) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser	

	Crawley Green Road, Park Town, Luton, East of England, LU1 3LP				
LN71	Crescent Road (Not inside AQMA) XOS 509549 YOS 221623 Crescent Road, High Town, Luton, East of England, LU2 0AB	HIGH TOWN (A) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser	
LN72	Hucklesby Way (Not inside AQMA) XOS 508937 YOS 221745 A6, High Town, Luton, East of England, LU2 7PB	HIGH TOWN (A) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser	
LN73	Mill Street (Not inside AQMA) XOS 508959 YOS 221633 Mieso, Mill Street, High Town, Luton, East of England, LU1 2NA	SOUTH (D) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser NO ₂ Annual Mean: 2012 – NDA 2013- NDA 2014 - NDA 2015 - 37 2016- 44 2017 - 42	
LN74	Dunstable Road – Bury Park (Not inside AQMA) XOS 508165 YOS 222002 Oakdale Methodist Church, Dunstable Road, Bury Park, Luton, East of England, LU4 8FG	BISCOT (B) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser NO ₂ Annual Mean: 2012 – NDA 2013- NDA 2014 - NDA 2015 - 39 2016 – 41 2017 - 39	
LN75	New Bedford Road (Not inside AQMA) XOS 508745 YOS 222122 Cromwell Road, Bury Park, Luton, East of England, LU3 1DP	BISCOT (B) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser NO ₂ Annual Mean: 2012 – NDA 2013- NDA 2014 - NDA 2015 - 38 2016 – 41 2017 - 38	
LN76	Leagrave Road (Not inside AQMA) XOS 507574 YOS 222948 Leagrave Road, Bury Park, Luton, East of England, LU3 1RG	BISCOT (C) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser	
LN77	Marsh Road (Not inside AQMA) XOS 506496 YOS 224018 Marsh Road, Limbury, Luton, East of England, LU3 2RW	LIMBURY (A) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser	
LN78	Hibbert Street (Not inside AQMA) XOS 509109 YOS 220676 Hibbert Street, New Town, Luton, East of England, LU1 3UU	SOUTH (B) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser	
LN79	Castle Street 2 (Not inside AQMA) XOS 509050 YOS 220634	SOUTH (B) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser	

	DBM Motorcycles, Castle Street, New Town, Luton, East of England, LU1 3AL				
LN80	Windsor Street (Not inside AQMA) XOS 509038 YOS 220719 H B Curry, Windsor Street, New Town, Luton, East of England, LU1 3UB	SOUTH (B) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser	
London Luton Airport (LLA) Non-Automatic Monitoring Sites					
LA01	Terminal Patio (Not inside AQMA) XOS 511847 YOS 221336 Luton Airport, Airport Way, Wigmore, Luton, East of England, LU2 9LR	AIRPORT/ WIGMORE	NO ₂	Tube NOT collocated with a Continuous Analyser	
LA02	Airport Approach Road (Not inside AQMA) XOS 511586 YOS 220978 Airport Way, Wigmore, Luton, East of England, LU2 9GP	AIRPORT/ WIGMORE	NO ₂	Tube NOT collocated with a Continuous Analyser NO ₂ Annual Mean: 2012 – ? 2012 – 40? 2013 - 32 2014 - 33 2015 - 29 2016 – 40 2017 - 38	
LA03	Runway Threshold Western (Not inside AQMA) XOS 511156 YOS 220437 A1081, Park Town, Luton, East of England, England, LU2 9NH	AIRPORT/ WIGMORE	NO ₂	Tube NOT collocated with a Continuous Analyser	
LA04	Runway Threshold Eastern (Not inside AQMA) XOS 513634 YOS 221198 King's Walden, North Hertfordshire, Hertfordshire, East of England, England, LU2 8PA	AIRPORT/ WIGMORE	NO ₂	Tube NOT collocated with a Continuous Analyser	
LA05	Runway Apron (Not inside AQMA) XOS 511703 YOS 221320 Luton Airport, Airport Way, Wigmore, Luton, East of England, LU2 9LR	AIRPORT/ WIGMORE	NO ₂	Tube NOT collocated with a Continuous Analyser NO ₂ Annual Mean: 2012 – ?? 2013 - 36 2014 - 38 2015 - 34 2016 – 43 2017 - 40	
LA06	President Way Jct (Not inside AQMA) XOS 511645 YOS 221679 Percival Way, Wigmore, Luton, East of England, LU2 9PF	AIRPORT/ WIGMORE	NO ₂	Tube NOT collocated with a Continuous Analyser	
LA07	Terminal Car Park (Not inside AQMA) XOS 512181 YOS 221352 London Luton Airport, Percival Way, Wigmore, Luton, East of England, LU2 9LY	AIRPORT/ WIGMORE	NO ₂	Tube NOT collocated with a Continuous Analyser	

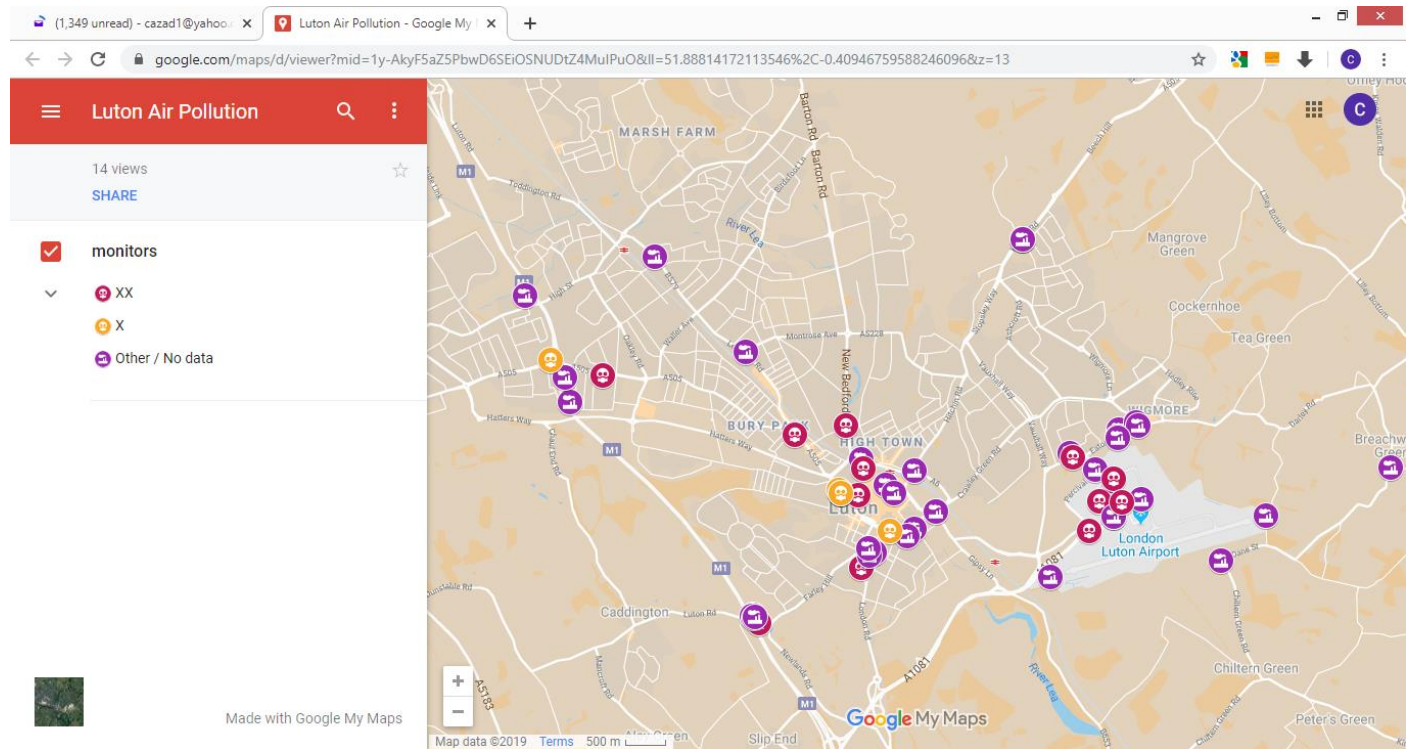
LA08	BAM Collocated (Not inside AQMA) XOS 511871 YOS 221142 EasyJet Hangar 89, Airport Way, Wigmore, Luton, East of England, LU2 9LU	AIRPORT/ WIGMORE	NO ₂	Tube NOT collocated with a Continuous Analyser	
LA09	Stagenhoe Bottom Farm (Not inside AQMA) XOS 517637 YOS 222554 St Paul's Walden, North Hertfordshire, Hertfordshire, East of England, SG4 8NW		NO ₂	Tube NOT collocated with a Continuous Analyser	
LA10	Grove Farm Slip End (Not inside AQMA) XOS 507623 YOS 217724 Limekiln Plantation, Half Moon Lane, Slip End, Pepperstock, Central Bedfordshire, LU1 4LW		NO ₂	Tube NOT collocated with a Continuous Analyser	
LA14	Stand 60 Luton Airport (Not inside AQMA) XOS 511861 YOS 221579 Luton Airport, Airport Way, Wigmore, Luton, East of England, LU2 9LR	AIRPORT/ WIGMORE	NO ₂	Tube NOT collocated with a Continuous Analyser NO ₂ Annual Mean: 2012 - ? 2013- 32 2014 - 33 2015 -29 2016 – 39 2017 - 38	
LA15	Eaton Green Road (Not inside AQMA) XOS 511899 YOS 222051 Eaton Green Road, Wigmore, Luton, East of England, LU2 9ST, United Kingdom	CRAWLEY (A) SOUTH	NO ₂	Tube NOT collocated with a Continuous Analyser	
LA16	Set Down Area (Not inside AQMA) XOS 511954 YOS 221313 Bay D Arriva Local, Airport Way, Wigmore, Luton, East of England, LU2 9NE	AIRPORT/ WIGMORE	NO ₂	Tube NOT collocated with a Continuous Analyser NO ₂ Annual Mean: 2012 – ? 2013- 32 2014 – 37 2015 - 30 2016 – 41 2017 - 40	
LA17	Dane End (Not inside AQMA) XOS 513125 YOS 220664 Hyde, Luton, East of England, England, LU2 8PE	HYDE/ LUTON	NO ₂	Tube NOT collocated with a Continuous Analyser	
LA18	Breachwood Green (Not inside AQMA) XOS 515053 YOS 221778 Chapel Road, King's Walden, North Hertfordshire, Hertfordshire, East of England, SG4 8NX	BREACHW OOD GREEN/ HERTS	NO ₂	Tube NOT collocated with a Continuous Analyser NO ₂ Annual Mean: 2013 - NDA 2014 - NDA 2015 - NDA 2016 - 14 2017 - 14	
LA19	Kensworth (Not inside AQMA) XOS 502848 YOS 218161	KENSWOR TH/	NO ₂	Tube NOT collocated with a	

	Kensworth, Central Bedfordshire, East of England, LU6 2PJ	BEDFORD SHIRE		Continuous Analyser NO ₂ Annual Mean: 2013 - NDA 2014 - NDA 2015 - NDA 2016 - 12 2017 - NDA	
NEEDS OS: LA20	Short Term Car Park What is the OS??? – Why is the OS missing on page 25 for this one??		NO ₂	Tube NOT collocated with a Continuous Analyser NO ₂ Annual Mean: 2012 – NDA 2013 - NDA 2014 - NDA 2015 - NDA 2016 - NDA 2017 - 41	

MappingLutonAirPollutionMonitoring-3Dec2019

Luton Air Pollution - <https://drive.google.com/open?id=1y-AkyF5aZ5PbwD6SEiOSNUdtZ4MuIPuO&usp=sharing>

<https://www.google.com/maps/d/viewer?mid=1y-AkyF5aZ5PbwD6SEiOSNUdtZ4MuIPuO&ll=51.88814172113546%2C-0.40946759588246096&z=13>





2018 Air Quality Annual Status Report (ASR)

In fulfilment of Part IV of the
Environment Act 1995
Local Air Quality Management

November 2018

Local Authority Officer	Andrew Loosley
Department	Environmental Protection
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Report Reference number	LBC-ASR-2018
Date	November 2018

Executive Summary: Air Quality in Our Area

Air Quality in Luton Borough Council

Air pollution is associated with a number of adverse health impacts. It is recognised as a contributing factor in the onset of heart disease and cancer. Additionally, air pollution particularly affects the most vulnerable in society: children and older people, and those with heart and lung conditions. There is also often a strong correlation with equalities issues, because areas with poor air quality are also often the less affluent areas^{1,2}.

The annual health cost to society of the impacts of particulate matter alone in the UK is estimated to be around £16 billion³.

Luton Borough Council (LBC) is a unitary authority in Bedfordshire with an estimated population of 214,700 (ONS mid-year figure for 2017) in an area of 4,336 hectares. The borough is dominated by the population centre of Luton town, with the M1 motorway running north/south on its western side, and London Luton Airport at the south east of the borough.

Road traffic is the main source of pollution in the borough with both the town and the motorway providing significant traffic volumes. Other sources include London Luton Airport and local industry, which is distributed in pockets around the borough. As of 2017, 42 industrial processes permitted by Luton Borough Council and 1 industrial installation permitted by the Environment Agency (EA) were operational within the borough (although the EA regulated installation has since also transferred to local authority enforcement).

At present the main pollutant of concern is nitrogen dioxide (NO₂). The council monitors this pollutant as well as particulate matter, however no exceedance of the objective for particulate matter (PM₁₀) has been either measured or modelled to date.

Recent focus on particulate matter has changed to the smaller PM_{2.5} fraction. Responding to growing concerns about the health effects of this pollutant, Luton Borough Council started measuring PM_{2.5} levels at its town centre automatic monitoring station (situated on Dunstable Road East) at the end of 2014. Over the

¹ Environmental equity, air quality, socioeconomic status and respiratory health, 2010

² Air quality and social deprivation in the UK: an environmental inequalities analysis, 2006

³ Defra. Abatement cost guidance for valuing changes in air quality, May 2013

three years for which monitoring has been ongoing the annual mean PM_{2.5} concentration has remained essentially constant at ~10µg/m³; compliant with both the EU limit and WHO guideline values of 25µg/m³ and 10µg/m³ respectively.

During 2017, across all LBC NO₂ monitoring sites that have been in the same place for more than one year, only one recorded a higher annual mean concentration than in 2016 (*LN23 – Eaton Green Road 1*, which at 36.6µg/m³ was 0.8µg/m³ higher than the previous year). Of the remaining sites, levels decreased at 31 locations and remained unchanged at a further 5. Across the borough the average decrease at LBC diffusion tube sites was -2.0 µg/m³, with the single biggest decrease (-6.4µg/m³, -13.0%) occurring at *LN 52 – Dunstable Rd/Cardigan St Residential*.

Across London Luton Airport's diffusion tube sites the pictures was more mixed, with annual mean levels increasing in 5 locations, decreasing in 8 and remaining unchanged in a further 2 places. The biggest decrease (-2.9µg/m³, -6.8%) occurred at *LA05 – Runway Apron*, whilst for the second time in 2 years the biggest increase (9.8µg/m³, 27.1%) occurred at *LA07 – Terminal Car Park*.

Concentrations of nitrogen dioxide above the objective have been identified in 2 main locations to date:

- along the length of the M1 Motorway; and
- along the A505 (Dunstable Road) in part of Bury Park and the Town Centre.

Both of these areas have been declared as Air Quality Management Areas (AQMA). For further information please see the Council's website (<https://tinyurl.com/y9zegeyi>) or its page on the UK Air web portal (<https://tinyurl.com/yd8t7ma2>).

As a result of the most recent Air Quality Management Area Declaration, Luton Borough Council has developed and consulted on a new Air Quality Action Plan (AQAP) to address the concentrations found. Subject to minor amendments, this AQAP was approved by the Council Executive on 4th June 2018 and is expected to be published before the end of 2018.

Luton is currently seeing an increased number of planning applications, including a number of substantial developments which have potential to impact upon air quality. Policies to control development and the associated travel implications are contained within the Luton Local Plan 2011-2031 and the third Local Transport Plan (LTP3).

Planning applications are referred to Environmental Health to determine if there is likely to be an impact on air pollution concentrations, or if the development is likely to result in people being exposed to poor air quality. Further assessment may be required by developers in order to determine appropriate mitigation for the development considering its location and its impact on the local environment. For smaller developments, mitigation may be agreed without providing further assessment of the air quality impacts. A review of potential mitigation measures appropriate for new developments is currently under way. This review should bring about an accelerated implementation of greener transport strategies and green infrastructure initiatives, which it is hoped will bring about a reduction in pollution concentrations within the borough despite the number of development projects that are taking place and are planned for the future.

As a member of the *Herts & Beds Air Quality Network*, Luton Borough Council works with colleagues in neighbouring authorities to ensure a consistent approach and raise the awareness of air quality in Luton and the surrounding area.

Where Air Quality Management Areas have been declared, appropriate actions are identified working in conjunction with partners both within the Council (Public Health, Highways, Sustainability, Licensing, Development Control) and externally (Environment Agency, Highways England, local transport providers). Regular contact with these partners will ensure that steps identified are progressed with the aim of reducing concentrations of air pollutants.

Actions to Improve Air Quality

Prior to the declaration of AQMA No. 3 in May 2016, actions to improve air quality in Luton were limited to being quite general in scope due to AQMA Nos. 1 & 2 both relating to motorway traffic (which the Council is unable to influence). With the declaration of an AQMA relating to town centre traffic, the Council is now in a position to implement more directly targeted actions to reduce nitrogen dioxide levels in the affected area.

During 2017-18 the Council's Air Quality Steering Group has met on a monthly basis to develop a new AQAP to address the exceedance of the air quality objective level for annual mean nitrogen dioxide within AQMA No. 3. Incorporating inputs from a wide variety of stakeholders, the Steering Group's proposed action plan was put out

for public consultation on 27 September 2017 before being approved (subject to minor amendments) by the Council Executive on 4 June 2018. Publication of the finalised plan is now expected before the end of 2018.

In addition to the development and agreement of the new AQAP for AQMA No. 3, some of the other significant measures undertaken by Luton Borough Council during 2017-18 to improve air quality have included:

- ongoing work to secure the development of a Luton Park & Ride at M1 junction 10A;
- the completion of highway improvement works on Dunstable Road to improve traffic flow and reduce congestion;
- work to promote sustainable travel across the county by promoting active travel to and from railway stations;
- the introduction of viable message signs (VMS) displaying town centre parking information with directions varying dependent on congestion;
- improvements to the Luton – Dunstable cycle route;
- the hosting of a pop-up event in St. George's Square showcasing the different types of electric vehicles (EV) that are available; and
- the continued promotion of lift sharing schemes and electric vehicle car clubs.

Conclusions and Priorities

Relative to the previous year's results, 2017 saw improved annual mean NO₂ levels at most Luton Borough Council monitoring locations. Accordingly, the number of exceedances of the annual objective level also decreased slightly from 7 to 6:

- x2 (LN52 & LN61/62/63) occurred within AQMA No. 3;
- x1 (LN86) occurred within AQMA Nos. 1 & 2;
- x1 (LN28) was not representative of relevant exposure – *As noted in last year's ASR, the value of continued monitoring at this location should be reassessed;* and
- x2 (LN67 & LN73) occurred at town centre locations at the periphery of AQMA No. 3 - *Going forward attention must be paid to future measurements at these locations and consideration should be given to including them in an AQMA.*

Respectively, these are the third and second consecutive years during which the annual mean NO₂ air quality objective has been exceeded at these locations.

Over the coming year Luton Borough Council's air quality priorities are:

- to work to ensure the timely implementation of the measures identified in the new AQAP; and
- to develop a new Air Quality Strategy focused on securing long-term borough-wide improvements in air quality.

Local Engagement and How to get Involved

The potential for the residents and businesses of Luton to have a positive impact on air quality is considerable. Poor air quality in the town has been shown to be as a result of busy and congested roads.

By choosing sustainable methods of travel, there will be less pollution in the local atmosphere. Recommended travel methods are:

- Walking
- Cycling
- Public Transport
- Use of Electric Vehicles

Where these are not feasible, the use of a newer vehicle that meets a higher emissions specification will produce less pollution than an older engine.

More information on journey planning, sustainable modes of travel and the local transport network can be found on the following websites:

- *Travel Luton* - <https://tinyurl.com/yb3mmhxg>
Has sections on: Walking, Cycling, Bus, Train, Car, Busway, and the Airport.
- *Busway* - <https://tinyurl.com/ybozek4g>
Information regarding Busway routes and times.
- *Luton Borough Council Transport and streets* - <https://tinyurl.com/yd8du68t>
General and information regarding the transport network and advice on sustainable.

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1 Local Air Quality Management

This report provides an overview of air quality in Luton Borough Council during 2017. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995) and the relevant Policy and Technical Guidance documents.

The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether or not the air quality objectives are likely to be achieved. Where an exceedance is considered likely the local authority must declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in pursuit of the objectives. This Annual Status Report (ASR) is an annual requirement showing the strategies employed by Luton Borough Council to improve air quality and any progress that has been made.

The statutory air quality objectives applicable to LAQM in England can be found in Table E.1 in Appendix E.

2 Actions to Improve Air Quality

2.1 Air Quality Management Areas

Air Quality Management Areas (AQMAs) are declared when there is an exceedance or likely exceedance of an air quality objective. After declaration, the authority must prepare an Air Quality Action Plan (AQAP) within 12-18 months setting out measures it intends to put in place in pursuit of compliance with the objectives.

A summary of AQMAs declared by Luton Borough Council can be found in Table 2.1. Further information related to declared or revoked AQMAs, including maps of AQMA boundaries are available online at http://uk-air.defra.gov.uk/aqma/local-authorities?la_id=150 – see full list at <http://uk-air.defra.gov.uk/aqma/list>.

Alternatively, see Appendix D: Maps of Monitoring Locations and AQMAs, which provides for a map of air quality monitoring locations in relation to the AQMA(s).

Table 2.1 – Declared Air Quality Management Areas

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	City / Town	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance (maximum monitored/modelled concentration at a location of relevant exposure)		Action Plan (inc. date of publication)
						At Declaration	Now	
Luton AQMA No.1	Declared 03/11/2003	NO ₂ Annual Mean	Luton	24 Residential properties on either side of the M1 Motorway, near Junction 11	YES	47.6µg/m ³	41.9µg/m ³	Within Local Transport Plan 3 2011-2026 (March 2011) [https://tinyurl.com/y9r4vhkf]
Luton AQMA No.2	Declared 31/03/2005	NO ₂ Annual Mean	Luton	431 Residential properties on either side of the M1 Motorway, near Junction 11	YES	58.9µg/m ³	41.9µg/m ³	Within Local Transport Plan 3 2011-2026 (March 2011) [https://tinyurl.com/y9r4vhkf]
Luton AQMA No.3	Declared 01/05/2016	NO ₂ Annual Mean	Luton	From Dunstable Road by Kenilworth Road through to Stuart Street and Chapel Viaduct by Latimer Road, including Castle Street to Holly Street and Telford Way	NO	54.6µg/m ³	43.0µg/m ³	Development of AQAP completed Plan approved by Council Executive with minor amendments 4 th June 2018 Due for publication Q4 2018

☒ Luton Borough Council confirm the information on UK-Air regarding their AQMA(s) is up to date

2.2 Progress and Impact of Measures to address Air Quality in Luton Borough Council

During 2017-18, Luton Borough Council's Air Quality Steering Group developed and proposed a new AQAP to address the exceedance of the air quality objective for annual mean nitrogen dioxide levels. Put out to public consultation in September 2017, the Action Plan was subsequently approved (subject to minor amendments) by the Council Executive on 4 June 2018. The publication of the finalised plan is now expected before the end of 2018.

In addition to the delivery of the new AQAP, Luton Borough Council has taken forward a number of direct measures during the current reporting year of 2017 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2.

Further information on these measures can be found in the *Luton Local Transport Plan 3* (2011 - 2016; <https://tinyurl.com/y9r4vhkf>) as well as the soon to be published AQAP.

Over the past year, key completed measures have included:

- highway improvement works on Dunstable Road to improve traffic flow and reduce congestion within AQMA No. 3; and
- the introduction of 20mph zones in targeted residential areas across the borough.

Luton Borough Council expects the following measures to be completed over the course of the next reporting year:

- a review of operation of all traffic signals around Luton town centre and an upgrade to urban traffic management and control (UTMC) to improve the flow of traffic and reduce idling;
- the completion of improvements to the cycle network to improve connection to the Luton – Dunstable cycle route and drive modal shift to active travel;
- the reintroduction of an “Air Alert” service to proactively notify members of the public (especially vulnerable groups) of air pollution episodes, enabling them to limit their exposure and better manage any health conditions they may have; and

- an educational campaign targeted at drivers to raise awareness of the air quality impacts of idling vehicles.

Luton Borough Council's priorities for the coming year are:

- to work to ensure the timely implementation of the measures identified in the new AQAP; and
- to develop a new Air Quality Strategy focused on securing long-term borough-wide improvements in air quality.

Whilst the measures stated above and in Table 2.2 will help to contribute towards compliance, Luton Borough Council anticipates that further additional measures not yet prescribed will be required in subsequent years to achieve compliance and enable the revocation of all current AQMAs.

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure	EU Category	EU Classification	Organisations involved and Funding Source	Planning Phase	Implementation Phase	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
1	Implement a Luton Park & Ride by securing delivery at identified locations	Alternatives to private vehicle use	Bus based Park & Ride	LBC Transport	Initial scoping complete		Monitor use of Park & Ride once up and running	A Park & Ride would result in fewer cars driving into Luton Town Centre	Locations for Park & Ride sites have been identified. Next step is to secure delivery at these locations	By 2023	The emerging Luton Local Plan 2011 - 2031 provides policy support for Park & Ride schemes at M1 junction 10A and Butterfield Park Sources of funding to be identified
2	Reallocation of lanes, where possible to reduce start-stop traffic and congestion	Traffic Management	Other	LBC Transport	Complete	Summer 2017	No significant reduction in peak journey time / speeds	Reducing start-stop traffic reduces acceleration and braking, resulting in reduced emissions	Dunstable Road scheme completed September 2017	September 2017	https://tinyurl.com/yc27s9p8
3	Improvement of Chapel viaduct / Castle Street roundabout	Traffic Management		LBC Transport	Ongoing	2019	Improved traffic flow	Less idling would result in reduced emissions	Various options currently being considered	2020	

Luton Borough Council

Measure No.	Measure	EU Category	EU Classification	Organisations involved and Funding Source	Planning Phase	Implementation Phase	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
4	Review 20mph zones in and around AQMA #3 to encourage traffic calming and lower speeds	Traffic Management	Reduction of speed limits, 20mph zones	LBC Transport LBC Road Safety	2018		Increase number of vehicles adhering to 20mph within the zones	Vehicles travelling under 30mph generally emit less particulates and so improve air quality	20mph zones in place (Completed 2016 – 17)	2023	
5	Bedfordshire Sustainable Travel Access to Railway Stations (STARS)	Promoting Travel Alternatives	Intensive active travel campaign & infrastructure	LBC Transport in partnership with Central Bedfordshire Council and Bedford BC (£2.1 million funding secured from the DfT Access Fund for Sustainable Travel 2017 - 2020)	Ongoing	Ongoing	Increase in use of sustainable travel into Luton Town Centre	Increased use of sustainable travel will reduce car use and emissions	Ongoing	2020	https://tinyurl.com/y7jngxce
6	Review of operation of all traffic signals around Luton town centre and upgrade to UTM	Traffic Management	UTC, Congestion management, traffic reduction	LBC Transport Network Technology	2017	2018	Improved traffic flow	Less idling would result in reduced emissions	Study complete: recommendations implemented	2018	

Luton Borough Council

Measure No.	Measure	EU Category	EU Classification	Organisations involved and Funding Source	Planning Phase	Implementation Phase	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
7	Connections to Luton - Dunstable cycle route to be improved and promoted	Transport Planning and Infrastructure	Cycle network	LBC Transport LBC Road Safety	2017	2017 - 2018	Increase number of people using cycle routes to access the town centre	Increase in cycling creates modal shift away from the car, resulting in reduced emissions	Ongoing	Development of cycle network to be completed in 2018	
8	Implement viable message signs (VMS) linked to car parks in town centre, with direction varying dependent on congestion	Traffic Management	UTC, Congestion management, traffic reduction	LBC Transport Network Technology £76k Government grant awarded February 2017	2018	Installation of VMS due for completion Autumn 2018	Improved traffic flow and information dissemination	Smoother traffic flow leading to lower emissions	Ongoing	2019	Use of UTMC to integrate systems to be investigated
9	Proposed project to replace a number of small town centre surface car parks with intelligent parking system enabled multi storey on Crawley Road site	Traffic Management	Other	LBC Transport	2018	2019	Improved parking information and organisation	Less engine idling and running time while drivers search for parking	Planning application submitted	2019	

Luton Borough Council

Measure No.	Measure	EU Category	EU Classification	Organisations involved and Funding Source	Planning Phase	Implementation Phase	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
10	School travel planning via Modeshift STARS	Promoting Travel Alternatives	School Travel Plans	LBC Transport	Ongoing	Ongoing	Number of new and updated school travel plans	Increased uptake of lift sharing or sustainable transport methods will reduce emissions	Ongoing	Ongoing	Accredited schools have to submit their travel plans annually to maintain accreditation https://tinyurl.com/y9uh65l3
11	Development of Workplace Travel Plans for town centre employers (including LBC)	Promoting Travel Alternatives	Workplace Travel Planning	LBC Transport LBC Road Safety	2018	2019	Increase modal shift of staff using more sustainable modes	Increased uptake of lift sharing or sustainable transport methods will result in reduced emissions	Planning phase	2020	Potential measures to encourage sustainable travel include promotion of cycling and walking, discounted bus and rail travel, and car sharing Modeshift STARS to be used to manage process

Luton Borough Council

Measure No.	Measure	EU Category	EU Classification	Organisations involved and Funding Source	Planning Phase	Implementation Phase	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
12	Provide improved EV charging infrastructure	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	LBC Transport	2018	Ongoing	Increase number of EV charge points	Increased EV use will result in a decrease in emissions	14 charge points installed A further 10 to be installed Spring 2018	2023	Encourage greater ULEV uptake by providing charging points at Town Centre taxi ranks, car parks and on-street EV parking bays. Free / reduced parking during charging period Encourage new developments to provide EV charging infrastructure
13	Promotion of car & lift sharing scheme via the Travel Luton website	Alternatives to private vehicle use	Car & lift sharing schemes	LBC Transport	2010 - 2011	Ongoing	Number of lift share scheme users	Lift sharing will result in fewer cars on the roads and hence reduced emissions		Ongoing	https://www.travel-luton.co.uk

Luton Borough Council

Measure No.	Measure	EU Category	EU Classification	Organisations involved and Funding Source	Planning Phase	Implementation Phase	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
14	Promote / encourage greater take-up of the Electric Vehicle Town Centre car club by residents and businesses	Alternatives to private vehicle use	Car Clubs	LBC Transport	2010 - 2011	Ongoing	Increase number of car club users	Use of the club's four electric cars rather than less sustainable transport will result in a reduction of emissions	49 users within LBC and 30 personal users	Ongoing	Extension to this scheme to be facilitated via planning conditions for certain developments to provide additional funding
15	Information to vulnerable groups – Air Alert service	Public Information	Via other mechanisms	LBC Environmental Health Herts & Beds Air Quality Network	2014 - 2018	2018	Service to recommence	By informing vulnerable groups of likely peaks in air pollution, they will have an opportunity to limit exposure / better manage their conditions	Project piloted and awaiting full implementation	2018	
16	Raise awareness of vehicle idling through no-idling campaigns and driver education	Traffic Management	Anti-idling enforcement	LBC Transport LBC Parking Enforcement LBC Licensing	2017	Ongoing	Fewer drivers idling as a result of receiving information	Reduced idling would result in lower emissions	Ongoing	2018	Prioritise the town centre and AQMA #3. Emphasis on licensed vehicles (850 licensed vehicles around Luton) and buses.

Luton Borough Council

Measure No.	Measure	EU Category	EU Classification	Organisations involved and Funding Source	Planning Phase	Implementation Phase	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
17	In coordination with the Luton BID and local dealers, hold pop-up events in the town centre to showcase available EVs	Promoting Low Emission Transport	Other	LBC Environmental Health LBC Transport	2018	April 2018	Increased EV sales resulting from events	Increased EV uptake will result in reduced emissions	First event held in St. Georges Square on 27/28 April 2018	2023	
18	Work with operators to introduce hybrid/low emission buses on routes within AQMA #3	Vehicle Fleet Efficiency	Promoting Low Emission Public Transport	LBC Transport	2018 – 2021		Reduced emissions from buses	Improved Air Quality in AQMA #3		2021	Target introduction of Hybrid/low emission buses through Bury Park and on Dunstable Road DfT funding opportunities to be explored
19	Investigate implementing a Clean Air/Low Emissions Zone in the Town Centre	Promoting Low Emission Transport	Low Emission Zone (LEZ)	LBC Transport LBC Environmental Health	2018	Ongoing	Increased take up of clean energy vehicles / bikes by local businesses	Cleaner / greener transport options for staff and deliveries would reduce emissions in the town centre	Ongoing	2019	Project to research feasibility and funding options

Luton Borough Council

Measure No.	Measure	EU Category	EU Classification	Organisations involved and Funding Source	Planning Phase	Implementation Phase	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
20	Investigate expansion of pedestrianised area around Town Centre (either permanently or at peak times)	Traffic Management	Other	LBC Transport LBC Environmental Health	2019		Expansion of pedestrianised area will result in more people walking into the Town Centre	Wider pedestrianisation will reduce vehicle use in the Town Centre and hence result in improved air quality			
21	Assessment of benefit of current Town Centre green infrastructure to inform the development of new Town Centre planting schemes.			LBC Parks LBC Transport Sustainable Drainage	2018	Ongoing	Increase number of trees planted vs number of trees felled	In addition to absorbing CO ₂ , there is a growing body of evidence to shows that certain trees, shrubs and hedges can also help reduce levels of airborne pollutants	Ongoing	2019	

2.3 PM_{2.5} – Local Authority Approach to Reducing Emissions and/or Concentrations

As detailed in Policy Guidance LAQM.PG16 (Chapter 7), local authorities are expected to work towards reducing emissions and/or concentrations of PM_{2.5} (particulate matter with an aerodynamic diameter of 2.5µm or less). There is clear evidence that PM_{2.5} has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

Luton Borough Council is taking the following measures to address PM_{2.5}:

- Working in partnership with our Public Health Department, which has resulted from the following drivers:
 - Incorporation of the Public Health role within Unitary Authorities such as Luton Borough Council;
 - Increased evidence and awareness of harm from exposure to PM_{2.5}; and
 - Public Health Outcomes Framework indicator 3.01: *“Fraction of all-cause mortality attributable to anthropogenic particulate air pollution (measured as fine particulate matter, PM_{2.5})”*
- Luton’s Public Health Department funded the new real time air quality monitoring station located on Dunstable Road East, to the south of the town centre (LN60). This station includes a FIDAS particulate analyser which monitors a range of particulate fractions including PM_{2.5}. This analyser enables the Council to monitor any changes in particulate concentrations and assists in determining the effectiveness of measures taken to improve air quality.
- Luton Borough Council has not identified any measures that will specifically tackle PM_{2.5} concentrations however all measures that are aimed at reducing the numbers of road vehicles, and those that increase the uptake of sustainable transport methods, will have a positive impact on the reduction on PM_{2.5} that is produced locally.

3 Air Quality Monitoring Data and Comparison with Air Quality Objectives and National Compliance

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

This section sets out what monitoring has taken place and how it compares with objectives.

Luton Borough Council undertook automatic (continuous) monitoring of nitrogen dioxide, PM₁₀ and PM_{2.5} at 1 site (LN60 - Dunstable Road East - <https://tinyurl.com/ydga5dpp>) during 2017. Located within AQMA No.3, this analyser is co-located with diffusion tubes LN61, LN62 and LN63.

In addition to the monitoring undertaken by Luton Borough Council during 2017:

- London Luton Airport continuously monitored PM₁₀ at its site within the airport (<https://tinyurl.com/y9fvrfrr>); and
- Defra continuously monitored nitrogen dioxide at its Luton A505 Roadside AURN site (<https://tinyurl.com/ybenfhl6>).

Table A.1 in Appendix A shows the details of these sites. Maps showing the location of the monitoring sites are provided in Appendix D. Further details on how the monitors are calibrated and how the data has been adjusted are included in Appendix C.

3.1.2 Non-Automatic Monitoring Sites

Luton Borough Council undertook non- automatic (passive) monitoring of NO₂ at 41 sites during 2017. In addition to this, London Luton Airport undertook similar monitoring at a further 16 sites. Table A.2 in Appendix A shows the details of the sites.

Maps showing the location of the monitoring sites are provided in Appendix D. Further details on Quality Assurance/Quality Control (QA/QC) for the diffusion tubes, including bias adjustments and any other adjustments applied (e.g. distance correction), are included in Appendix C.

3.2 Individual Pollutants

The air quality monitoring results presented in this section are, where relevant, adjusted for bias, “annualisation” and distance correction. Further details on adjustments are provided in Appendix C.

3.2.1 Nitrogen Dioxide (NO₂)

Table A.3 in Appendix A compares the ratified and adjusted monitored NO₂ annual mean concentrations for the past 5 years with the air quality objective of 40µg/m³.

For diffusion tubes, the full 2017 dataset of monthly mean values is provided in Appendix B.

Table A.4 in Appendix A compares the ratified continuous monitored NO₂ hourly mean concentrations for the past 5 years with the air quality objective of 200µg/m³, not to be exceeded more than 18 times per year.

During 2017, the annual mean NO₂ level exceeded 40µg/m³ at 6 of Luton Borough Council’s 41 unique monitoring locations. Of these 6 exceedances (shown in bold on the tables in Appendix A & B and coloured red on the maps in Appendix D):

- x2 were located within AQMA No. 3 (*LN52 – Dunstable Rd/Cardigan St Residential & LN61/62/63 – Dunstable Road East/CRAQM2*);
- x1 was located within both AQMA Nos. 1 & 2 (*LN86 - Bradley Road (by M1 Bridge)*); and
- x3 fell outside of current AQMA boundaries.

Looking at the location of the 3 non-AQMA exceedances, 2 were in the town centre in relatively close proximity to AQMA No. 3, whilst the remaining one was located on the Caddington Road near to the M1. Reviewing the previous annual values obtained at these locations, the data available for the the town centre sites is limited due to monitoring only starting two years earlier. However, looking at the data for 2015 and 2016 it becomes apparent that this is the second consecutive year the annual mean NO₂ objective level has been exceeded at *LN73 – Mill Street* and the third at *LN67 – Castle Street*. As indicated in last year’s ASR (particularly in regard to LN67), due to the continued nature of these exceedances, serious consideration must now be given to incorporating these locations into an AQMA. With regard to the exceedance on the Caddington Road (*LN28 – Caddington Road*), looking at past

annual values for this site they have exceeded the objective level for annual mean NO₂ for each of the last 5 years. However, as noted in previous ASRs this location is not representative of relevant exposure and when distance corrected to estimate the resultant level at the façade of the nearest residential property an annual mean level of 29.8µg/m³ is obtained.

During 2017, the annual mean NO₂ level exceeded 40µg/m³ at 3 of London Luton Airport's 16 unique monitoring locations. However, as none of the airport's sites are in the vicinity of residential accommodation, none are representative of relevant exposure.

None of the annual mean NO₂ concentrations recorded during 2017 were greater than 60µg/m³, which would suggest that the 1-hour mean objective was not exceeded anywhere within the borough.

3.2.2 Particulate Matter (PM₁₀)

Particulate Matter (PM₁₀) has been monitored at Luton Borough Council's roadside site on Dunstable Road East (LN60) since January 2015 and continues to be monitored at London Luton Airport (LA08).

Table A.5 in Appendix A compares the ratified and adjusted monitored PM₁₀ annual mean concentrations with the air quality objective of 40µg/m³.

Table A.6 in Appendix A compares the ratified continuous monitored PM₁₀ daily mean concentrations with the air quality objective of 50µg/m³, not to be exceeded more than 35 times per year.

During 2017, the annual mean PM₁₀ concentration measured at LN60 was 16µg/m³ and at LA08 was 18µg/m³. There were 4 instances when the 24-hour mean concentration was greater than 50µg/m³ at LN60 and just 1 at LA08.

All measurements at both stations are currently considerably lower than the relevant air quality objective levels.

3.2.3 Particulate Matter (PM_{2.5})

Particulate Matter (PM_{2.5}) has been monitored at Luton Borough Council's Dunstable Road East roadside site (*LN60*) since January 2015.

Table A.7 in Appendix A presents the ratified and adjusted monitored PM_{2.5} annual mean concentrations for the past 3 years.

During 2017, the annual mean PM_{2.5} concentration measured at LN60 was 10µg/m³ (unchanged from 2016). Currently the LAQM Regulations do not include a specific objective for annual mean PM_{2.5}, however the levels observed within the borough are compliant with both the EU limit and WHO guideline values of 25µg/m³ and 10µg/m³ respectively.

Appendix A: Monitoring Results

Table A.1 – Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Monitoring Technique	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Inlet Height (m)
LN60 (HB007)	Dunstable Road East	Roadside	508708	221352	NO ₂ ; PM ₁₀ ; PM ₄ ; PM _{2.5} ; PM ₁	YES	Chemiluminescent; FIDAS	6.2	3.24	2.15
LA08 (HB006)	London Luton Airport	Urban Background	511871	221142	PM ₁₀	NO	Beta Attenuation Monitor	N/A	N/A	1.7
CM2 (LUTR; UKA00605)	Luton A505 Roadside (AURN)	Roadside	505927	222644	NO ₂	NO	Chemiluminescent	17.1	1.5	1.7

Notes:

(1) 0m if the monitoring site is at a location of exposure (e.g. installed on the façade of a residential property).

(2) N/A if not applicable.

Table A.2 – Details of Non-Automatic Monitoring Sites

a) Luton Borough Council (LBC) sites

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube collocated with a Continuous Analyser?	Height (m)
LN07	Guildford Street/Bute Street	Roadside	509227	221455	NO ₂	NO	1.5	3.10	NO	2.60
LN11	Upper George Street	Roadside	508910	221321	NO ₂	NO	20	2.65	NO	2.9
LN15	Armitage Garden	Roadside	505557	222325	NO ₂	YES	7	2.1	NO	2.8
LN16	Belper Road	Roadside	505492	222607	NO ₂	YES	5	2.45	NO	2.68
LN17	Wyndham Road	Roadside	505324	222812	NO ₂	YES	4	1.75	NO	2.82
LN18	Copperfields	Roadside	505014	223538	NO ₂	YES	2	1.55	NO	2.83
LN22	1 Mistletoe Hill	Urban Background	511341	221864	NO ₂	NO	0	9.3	NO	2.45
LN23	Eaton Green Road 1	Roadside	511377	221814	NO ₂	NO	18	6.4	NO	2.26
LN24	19 Barnston Close	Urban Background	511902	222144	NO ₂	NO	0	6.95	NO	2.5

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube collocated with a Continuous Analyser?	Height (m)
LN25	Eaton Green Road 2	Roadside	511893	222068	NO ₂	NO	17	1.86	NO	2.89
LN26	8 Keeble Close	Urban Background	512109	222234	NO ₂	NO	0	11.5	NO	2.7
LN27	Eaton Green Road 3	Roadside	512134	222198	NO ₂	NO	6	2.25	NO	2.71
LN28	Caddington Road	Roadside	507798	219832	NO ₂	NO	15	1.7	NO	2.6
LN52	Dunstable Rd/Cardigan St Residential	Roadside	508689	221379	NO ₂	YES	0	4.25	NO	2.84
LN53	3rd Floor Bagshawe Court F.F.	Suburban	507717	219923	NO ₂	NO	0	23	NO	9.79
LN54	M1 Corner Bagshawe Court F.F.	Suburban	507712	219915	NO ₂	NO	0	12	NO	1.95
LN55	M1 Corner Wyatt Court FF	Suburban	507732	219886	NO ₂	NO	0	13	NO	2.9
LN56	20 Wyatt Court FF	Suburban	507747	219894	NO ₂	NO	0	30	NO	2.9
LN57	Hitchin Rd/Cannon Lane Resi 1	Roadside	510747	224311	NO ₂	NO	2	9	NO	2.4

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube collocated with a Continuous Analyser?	Height (m)
LN58	Hitchin Rd/Cannon Lane Resi 2	Roadside	510747	224311	NO ₂	NO	2	9	NO	2.4
LN59	Hitchin Rd/Cannon Lane Resi 3	Roadside	510747	224311	NO ₂	NO	2	9	NO	2.4
LN61	CRAQM 2A	Roadside	508708	221352	NO ₂	YES	6	2.5	YES	2
LN62	CRAQM 2B	Roadside	508708	221352	NO ₂	YES	6	2.5	YES	2
LN63	CRAQM 2C	Roadside	508708	221352	NO ₂	YES	6	2.5	YES	2
LN64	Park Viaduct - Park Street	Roadside	509563	220952	NO ₂	NO	0.2	2.9	NO	2.65
LN65	Park Viaduct - Queens Close	Roadside	509486	220865	NO ₂	NO	1.85	8.8	NO	1.85
LN66	Park Viaduct	Roadside	509288	220925	NO ₂	YES	4.9	3.7	NO	2.65
LN67	Castle Street	Roadside	509083	220709	NO ₂	NO	0	2.25	NO	2.7
LN68	London Road	Roadside	508969	220487	NO ₂	NO	0	8.4	NO	2.57

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube collocated with a Continuous Analyser?	Height (m)
LN69	John Street	Roadside	509326	221357	NO ₂	NO	0	1.65	NO	2.65
LN70	Crawley Green Road	Roadside	509813	221161	NO ₂	NO	0	6	NO	2.62
LN71	Crescent Road	Urban Background	509549	221623	NO ₂	NO	0	10.3	NO	2.4
LN72	Hucklesby Way	Urban Background	508937	221745	NO ₂	NO	0	8.7	NO	2.5
LN73	Mill Street	Roadside	508959	221633	NO ₂	NO	0	3.9	NO	2.9
LN74	Dunstable Road - Bury Park	Roadside	508165	222002	NO ₂	NO	0	4.8	NO	2.5
LN75	New Bedford Road	Roadside	508745	222122	NO ₂	NO	0	5.15	NO	2.5
LN76	Leagrave Road	Urban Background	507574	222948	NO ₂	NO	0	8.8	NO	2.34
LN77	Marsh Road	Roadside	506496	224018	NO ₂	NO	0	4.8	NO	2.5
LN78	Hibbert Street	Roadside	509109	220676	NO ₂	NO	0.2	1.35	NO	2.4

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube collocated with a Continuous Analyser?	Height (m)
LN79	Castle Street 2	Roadside	509050	220634	NO ₂	NO	-	2.05	NO	3.0
LN80	Windsor Street	Roadside	509038	220719	NO ₂	NO	0.46	1.00	NO	2.33
LN81	Bank Close	Suburban	505034	223729	NO ₂	YES	-	1.7	NO	2.55
LN82	11 Withy Close	Suburban	504828	223999	NO ₂	YES	0	8.50	NO	2.50
LN83	b/h 9 Copperfields	Suburban	505116	223467	NO ₂	YES	13	26	NO	2.50
LN84	97 Lime Avenue	Suburban	505230	223304	NO ₂	YES	8.5	1.75	NO	2.5
LN85	26 Belper Road	Suburban	505481	222545	NO ₂	YES	0	17	NO	2
LN86	Bradley Road (by M1 Bridge)	Roadside	505586	222235	NO ₂	YES	-	2.3	NO	2.55

Notes:

(1) 0m if the monitoring site is at a location of exposure (e.g. installed on/adjacent to the façade of a residential property).

(2) N/A if not applicable.

b) London Luton Airport (LLA) sites

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube collocated with a Continuous Analyser?	Height (m)
LA01	Terminal Patio	Other	511847	221336	NO ₂	NO	620	N/A	NO	7
LA02	Airport Approach Road	Roadside	511586	220978	NO ₂	NO	880	3	NO	1.9
LA03	Runway Threshold Western	Other	511156	220437	NO ₂	NO	1000	N/A	NO	1.8
LA04	Runway Threshold Eastern	Other	513634	221198	NO ₂	NO	550	N/A	NO	2
LA05	Runway Apron	Other	511703	221320	NO ₂	NO	585	N/A	NO	1
LA06	President Way Jct	Roadside	511645	221679	NO ₂	NO	230	3	NO	2.3
LA07	Terminal Car Park	Other	512181	221352	NO ₂	NO	780	N/A	NO	2.3
LA08	BAM Collocated	Other	511871	221142	NO ₂	NO	820	N/A	NO	1.7
LA09	Stagenhoe Bottom Farm	Rural	517637	222554	NO ₂	NO	30	N/A	NO	1.2

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube collocated with a Continuous Analyser?	Height (m)
LA10	Grove Farm Slip End	Rural	507623	217724	NO ₂	NO	30	N/A	NO	1.2
LA14	Stand 60 Luton Airport	Roadside	511861	221579	NO ₂	NO	420	N/A	NO	1
LA15	Eaton Green Road	Roadside	511899	222051	NO ₂	NO	35	8	NO	2
LA16	Set Down Area	Kerbside	511954	221313	NO ₂	NO	690	0.5	NO	2
LA17	Dane End	Kerbside	513125	220664	NO ₂	NO	130	1	NO	2.1
LA18	Breachwood Green	Kerbside	515053	221778	NO ₂	NO			NO	
LA19	Kensworth	Kerbside	502848	218161	NO ₂	NO			NO	
LA20	Short Term Car Park	Kerbside			NO ₂	NO			NO	

Notes:

(1) 0m if the monitoring site is at a location of exposure (e.g. installed on/adjacent to the façade of a residential property).

(2) N/A if not applicable.

Table A.3 – Annual Mean NO₂ Monitoring Results

a) Luton Borough Council (LBC) sites

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2017 (%) ⁽²⁾	NO ₂ Annual Mean Concentration (µg/m ³) ⁽³⁾				
					2013	2014	2015	2016	2017
LN60 (HB007)	Roadside	Automatic	93	93	NDA	NDA	43	47	39
LN07	Roadside	Diffusion Tube	92	92	NDA	NDA	NDA	30	27
LN11	Roadside	Diffusion Tube	100	100	39	37	35	39	34
LN15	Roadside	Diffusion Tube	100	100	33	32	30	31	30
LN16	Roadside	Diffusion Tube	100	100	36	37	35	36	35
LN17	Roadside	Diffusion Tube	92	92	39	41	36	39	36
LN18	Roadside	Diffusion Tube	92	92	31	30	26	28	24
LN22	Urban Background	Diffusion Tube	100	100	23	23	21	25	23
LN23	Roadside	Diffusion Tube	100	100	32	32	32	36	37
LN24	Urban Background	Diffusion Tube	92	92	23	24	21	24	22
LN25	Roadside	Diffusion Tube	100	100	29	31	28	30	29
LN26	Urban Background	Diffusion Tube	100	100	21	22	21	21	20
LN27	Roadside	Diffusion Tube	100	100	28	28	28	30	30

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2017 (%) ⁽²⁾	NO ₂ Annual Mean Concentration (µg/m ³) ⁽³⁾				
					2013	2014	2015	2016	2017
LN28	Roadside	Diffusion Tube	92	92	44	49	43	46	46
LN52	Roadside	Diffusion Tube	100	100	54	52	46	49	43
LN53	Suburban	Diffusion Tube	83	83	34	34	33	34	33
LN54	Suburban	Diffusion Tube	92	92	33	40	32	34	34
LN55	Suburban	Diffusion Tube	100	100	38	36	31	34	33
LN56	Suburban	Diffusion Tube	100	100	33	33	32	34	31
LN57	Roadside	Diffusion Tube	N/A	N/A	NDA	33	31	33	NDA
LN58	Roadside	Diffusion Tube	N/A	N/A	NDA	33	31	32	NDA
LN59	Roadside	Diffusion Tube	N/A	N/A	NDA	33	31	34	NDA
LN61	Roadside	Diffusion Tube	100	100	NDA	NDA	43	45	43
LN62	Roadside	Diffusion Tube	100	100	NDA	NDA	43	46	41
LN63	Roadside	Diffusion Tube	100	100	NDA	NDA	41	46	42
LN64	Roadside	Diffusion Tube	100	100	NDA	NDA	32	34	31
LN65	Roadside	Diffusion Tube	100	100	NDA	NDA	26	27	26
LN66	Roadside	Diffusion Tube	100	100	NDA	NDA	37	39	39

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2017 (%) ⁽²⁾	NO ₂ Annual Mean Concentration (µg/m ³) ⁽³⁾				
					2013	2014	2015	2016	2017
LN67	Roadside	Diffusion Tube	100	100	NDA	NDA	44	48	42
LN68	Roadside	Diffusion Tube	100	100	NDA	NDA	32	35	33
LN69	Roadside	Diffusion Tube	100	100	NDA	NDA	29	33	31
LN70	Roadside	Diffusion Tube	100	100	NDA	NDA	31	34	34
LN71	Urban Background	Diffusion Tube	100	100	NDA	NDA	28	32	31
LN72	Urban Background	Diffusion Tube	83	83	NDA	NDA	27	31	30
LN73	Roadside	Diffusion Tube	92	92	NDA	NDA	37	44	42
LN74	Roadside	Diffusion Tube	100	100	NDA	NDA	39	41	39
LN75	Roadside	Diffusion Tube	100	100	NDA	NDA	38	41	38
LN76	Urban Background	Diffusion Tube	92	92	NDA	NDA	30	34	32
LN77	Roadside	Diffusion Tube	100	100	NDA	NDA	35	37	36
LN78	Roadside	Diffusion Tube	100	100	NDA	NDA	NDA	34	32
LN79	Roadside	Diffusion Tube	100	100	NDA	NDA	NDA	37	33
LN80	Roadside	Diffusion Tube	75	75	NDA	NDA	NDA	36	34
LN81	Suburban	Diffusion Tube	100	100	NDA	NDA	NDA	NDA	38

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2017 (%) ⁽²⁾	NO ₂ Annual Mean Concentration (µg/m ³) ⁽³⁾				
					2013	2014	2015	2016	2017
LN82	Suburban	Diffusion Tube	100	100	NDA	NDA	NDA	NDA	32
LN83	Suburban	Diffusion Tube	100	100	NDA	NDA	NDA	NDA	25
LN84	Suburban	Diffusion Tube	92	92	NDA	NDA	NDA	NDA	27
LN85	Suburban	Diffusion Tube	8	8	NDA	NDA	NDA	NDA	NDA
LN86	Roadside	Diffusion Tube	92	92	NDA	NDA	NDA	NDA	42

☒ Diffusion tube data has been bias corrected

☒ Annualisation has been conducted where data capture is <75%

Notes:

Exceedances of the NO₂ annual mean objective of 40µg/m³ are shown in **bold**.

NO₂ annual means exceeding 60µg/m³, indicating a potential exceedance of the NO₂ 1-hour mean objective are shown in **bold and underlined**.

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

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

(3) Means for diffusion tubes have been corrected for bias. All means have been “annualised” as per Boxes 7.9 and 7.10 in LAQM.TG16 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

b) London Luton Airport (LLA) sites

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2017 (%) ⁽²⁾	NO ₂ Annual Mean Concentration (µg/m ³) ⁽³⁾				
					2013	2014	2015	2016	2017
LA01	Other	Diffusion Tube	100	100	34	35	28	31	33
LA02	Roadside	Diffusion Tube	100	100	32	33	29	40	38
LA03	Other	Diffusion Tube	92	92	23	22	17	24	23
LA04	Other	Diffusion Tube	100	100	19	18	13	17	19
LA05	Other	Diffusion Tube	100	100	36	38	34	43	40
LA06	Roadside	Diffusion Tube	100	100	30	32	26	34	35
LA07	Other	Diffusion Tube	100	100	26	25	23	36	46
LA08	Other	Diffusion Tube	100	100	26	28	24	34	32
LA09	Rural	Diffusion Tube	100	100	12	11	7	10	11
LA10	Rural	Diffusion Tube	100	100	13	13	9	12	11
LA14	Roadside	Diffusion Tube	100	100	32	33	29	39	38
LA15	Roadside	Diffusion Tube	100	100	26	27	21	27	25
LA16	Kerbside	Diffusion Tube	92	92	32	37	30	41	40
LA17	Kerbside	Diffusion Tube	100	100	NDA	11	11	15	15

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2017 (%) ⁽²⁾	NO ₂ Annual Mean Concentration (µg/m ³) ⁽³⁾				
					2013	2014	2015	2016	2017
LA18	Kerbside	Diffusion Tube	83	83	NDA	NDA	NDA	14	14
LA19	Kerbside	Diffusion Tube	0	0	NDA	NDA	NDA	12	NDA
LA20	Kerbside	Diffusion Tube	83	83	NDA	NDA	NDA	NDA	41

☒ Diffusion tube data has been bias corrected

☒ Annualisation has been conducted where data capture is <75%

Notes:

Exceedances of the NO₂ annual mean objective of 40µg/m³ are shown in **bold**.

NO₂ annual means exceeding 60µg/m³, indicating a potential exceedance of the NO₂ 1-hour mean objective are shown in **bold and underlined**.

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

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

(3) Means for diffusion tubes have been corrected for bias. All means have been “annualised” as per Boxes 7.9 and 7.10 in LAQM.TG16 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

c) Defra AURN sites

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2017 (%) ⁽²⁾	NO ₂ Annual Mean Concentration (µg/m ³) ⁽³⁾				
					2013	2014	2015	2016	2017
CM2 (LUTR; UKA00605)	Roadside	Automatic	97	97	NDA	NDA	45	50	44

Notes:

Exceedances of the NO₂ annual mean objective of 40µg/m³ are shown in **bold**.

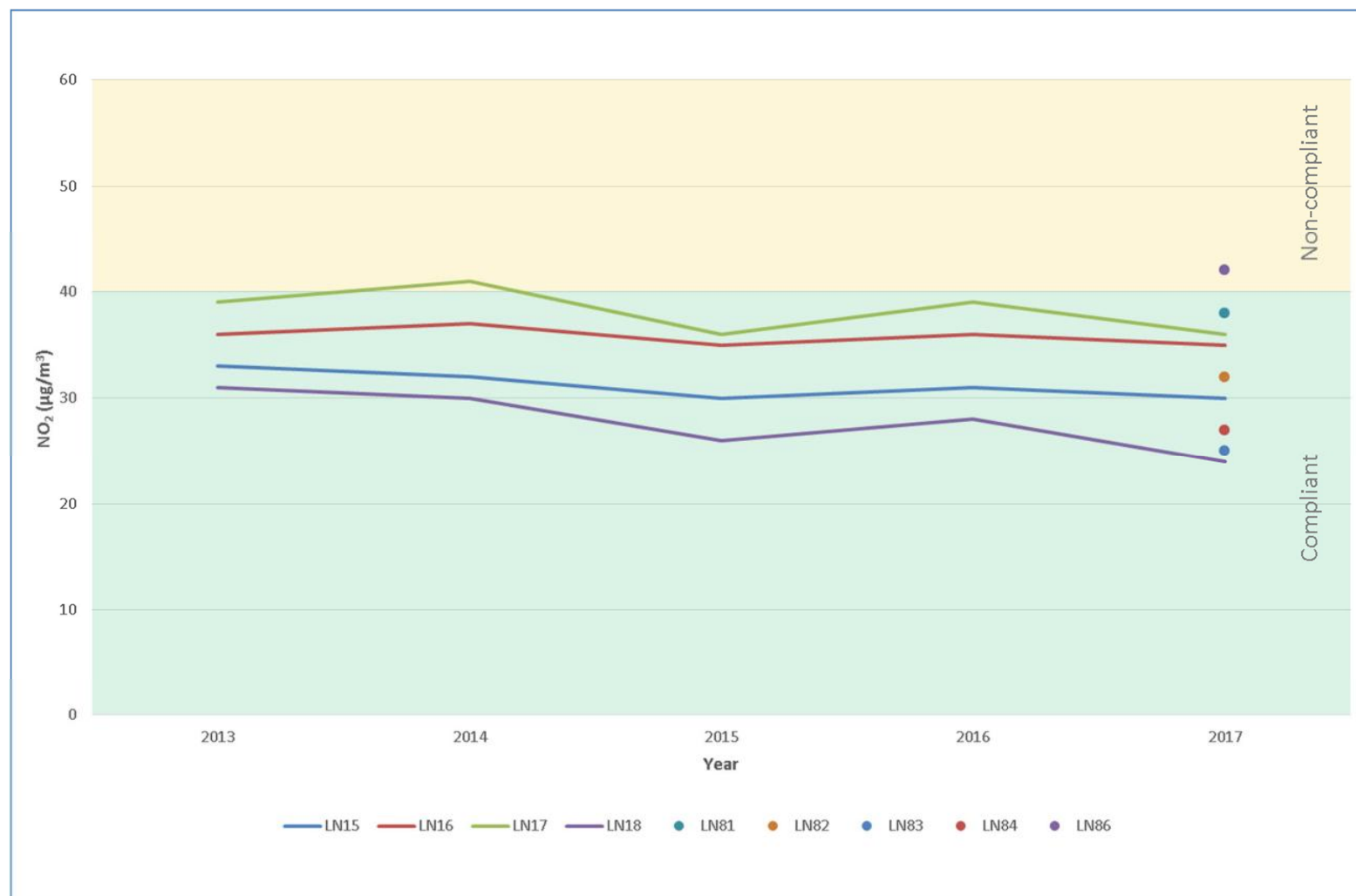
NO₂ annual means exceeding 60µg/m³, indicating a potential exceedance of the NO₂ 1-hour mean objective are shown in **bold and underlined**.

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

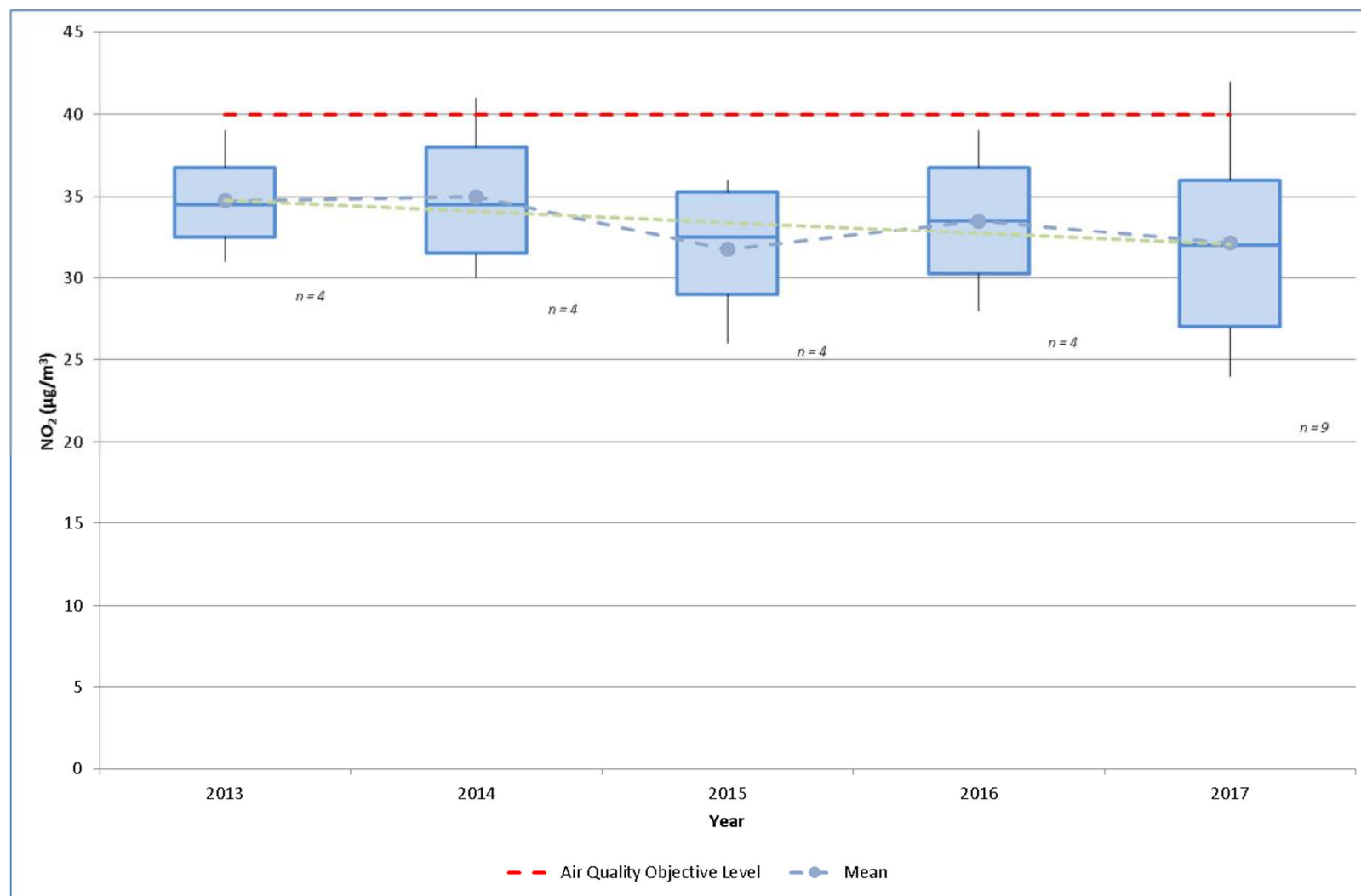
(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

Figure A.1 – Trends in Annual Mean NO₂ Concentrations

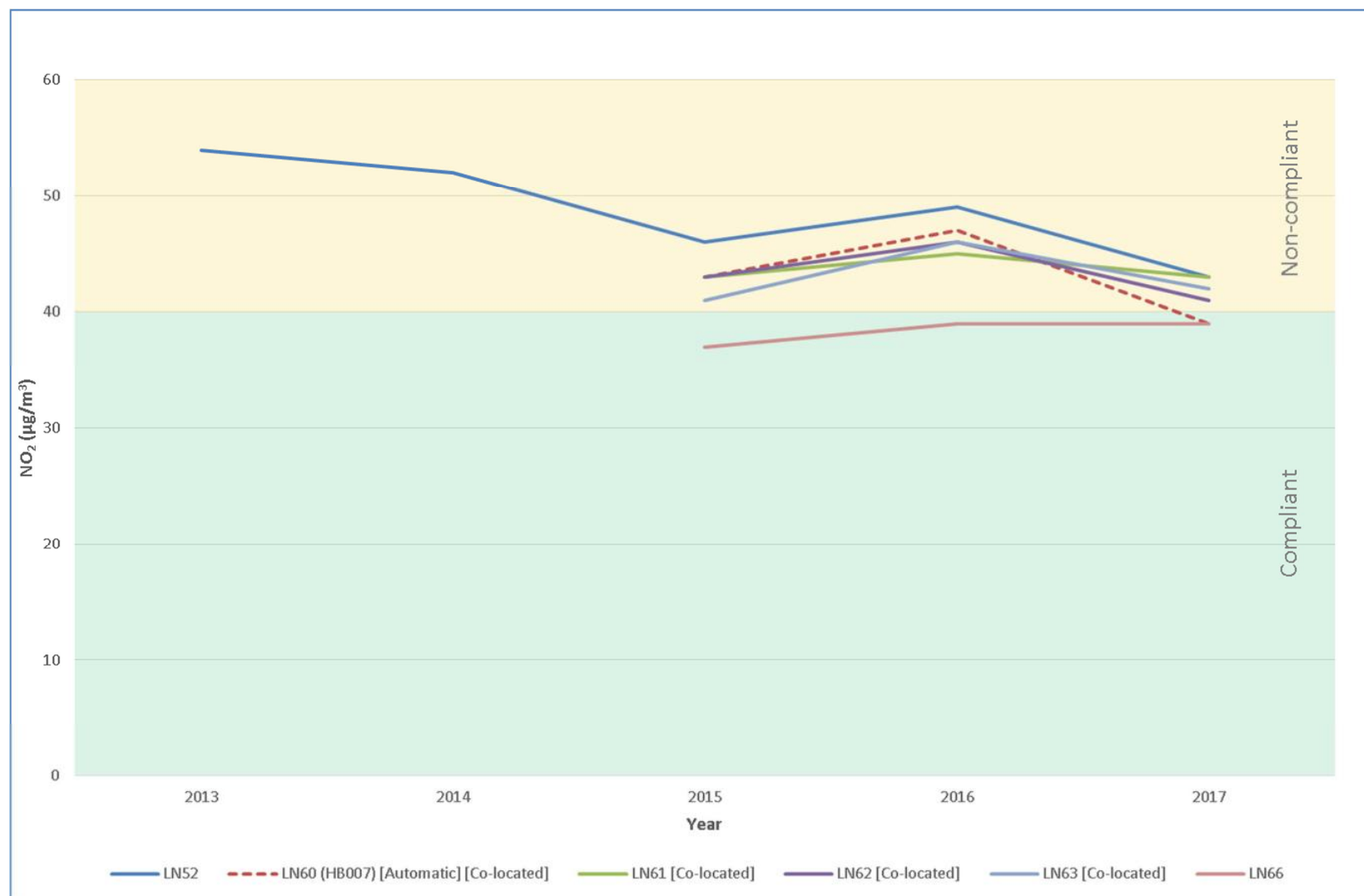
a) Annual Mean NO₂ Levels: Luton AQMA Nos. 1 & 2 (M1 Corridor)



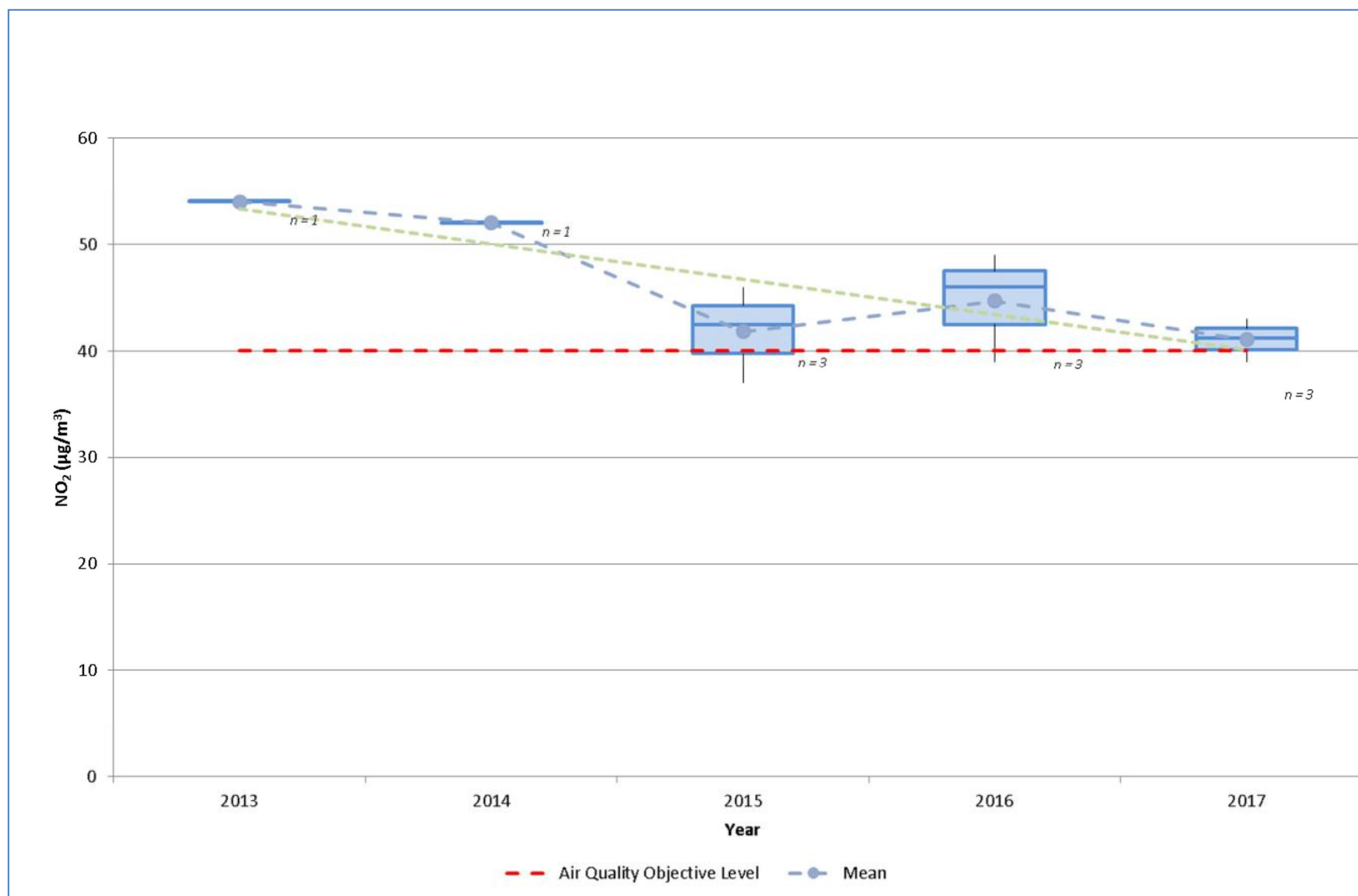
b) Box Plot of Annual Mean NO₂ Levels: Luton AQMA Nos. 1 & 2 (M1 Corridor)



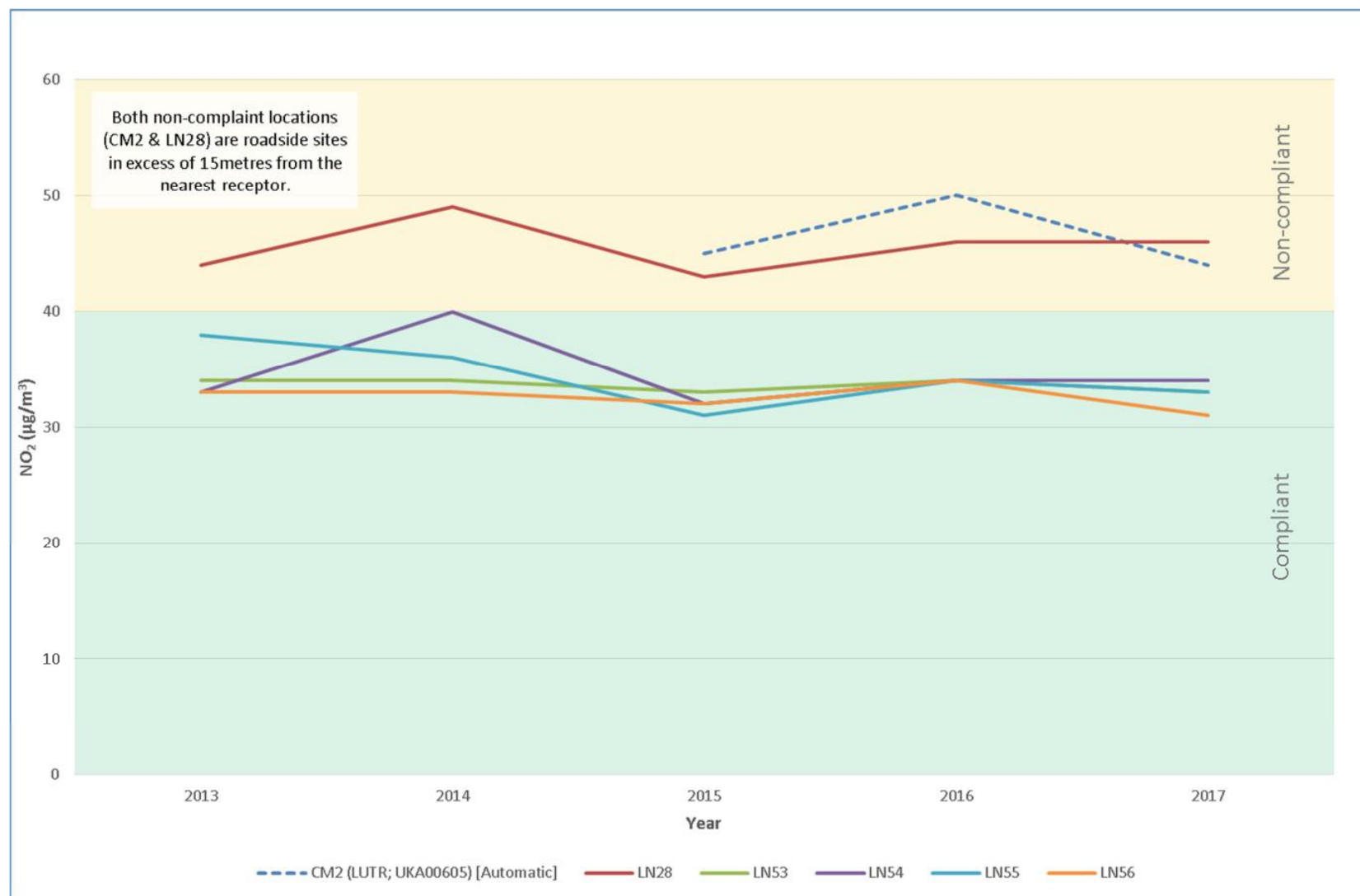
c) Annual Mean NO₂ Levels: Luton AQMA No. 3 (Town Centre)



d) Box Plot of Annual Mean NO₂ Levels: Luton AQMA No. 3 (Town Centre)



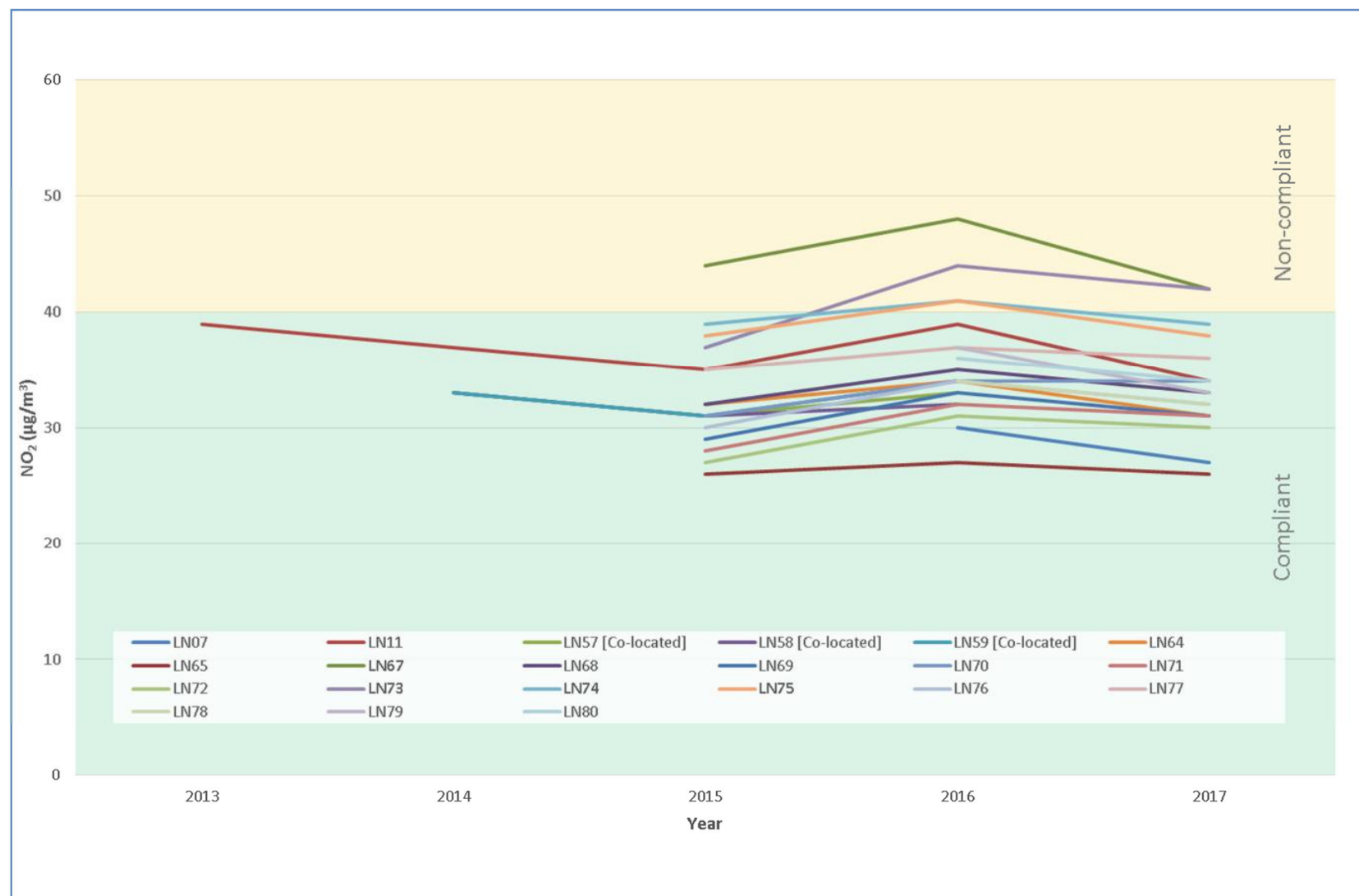
e) Annual Mean NO₂ Levels: Non-AQMA locations in the West of Luton (M1 Corridor)



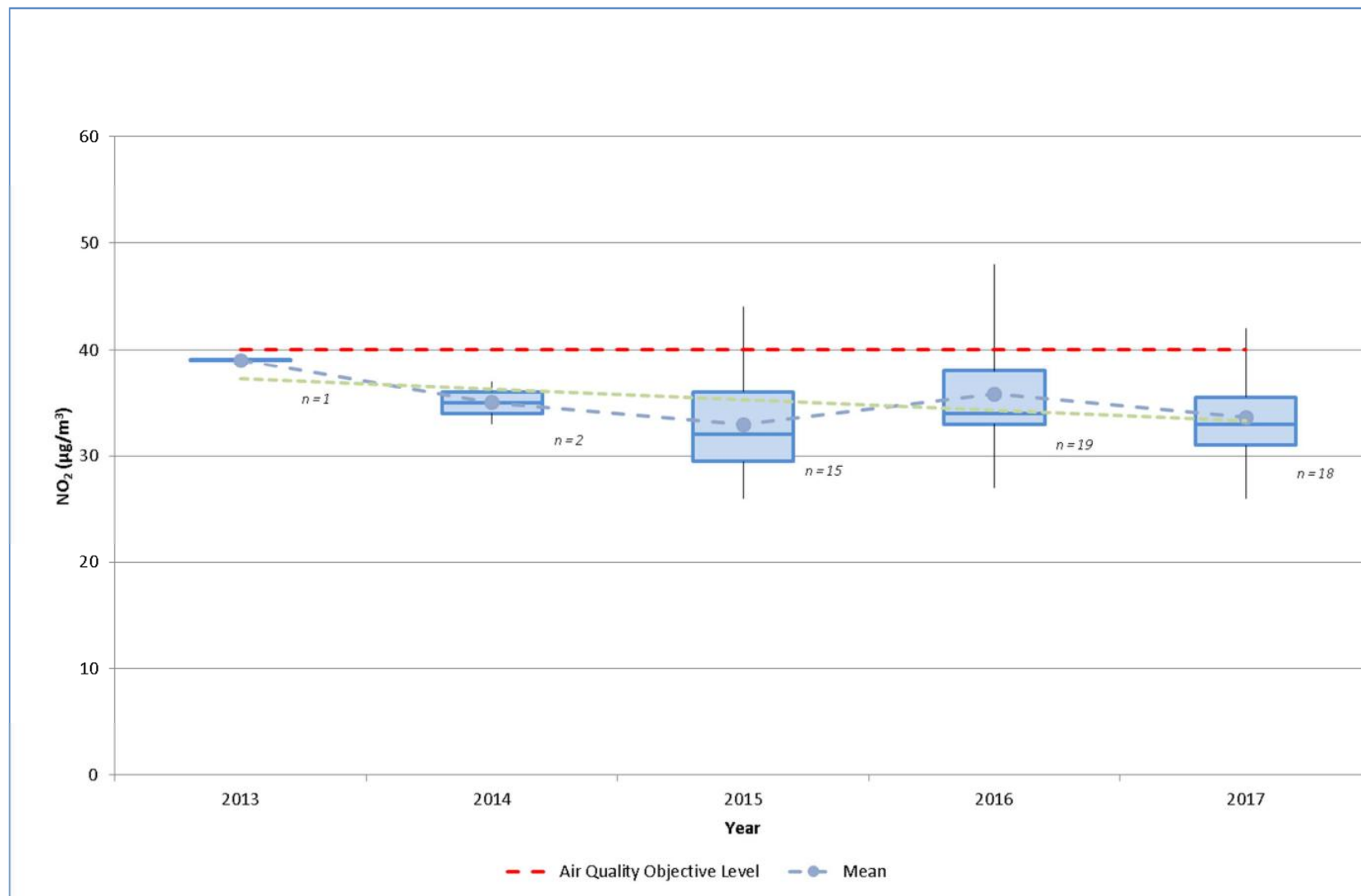
f) Box Plot of Annual Mean NO₂ Levels: Non-AQMA locations in the West of Luton (M1 Corridor)



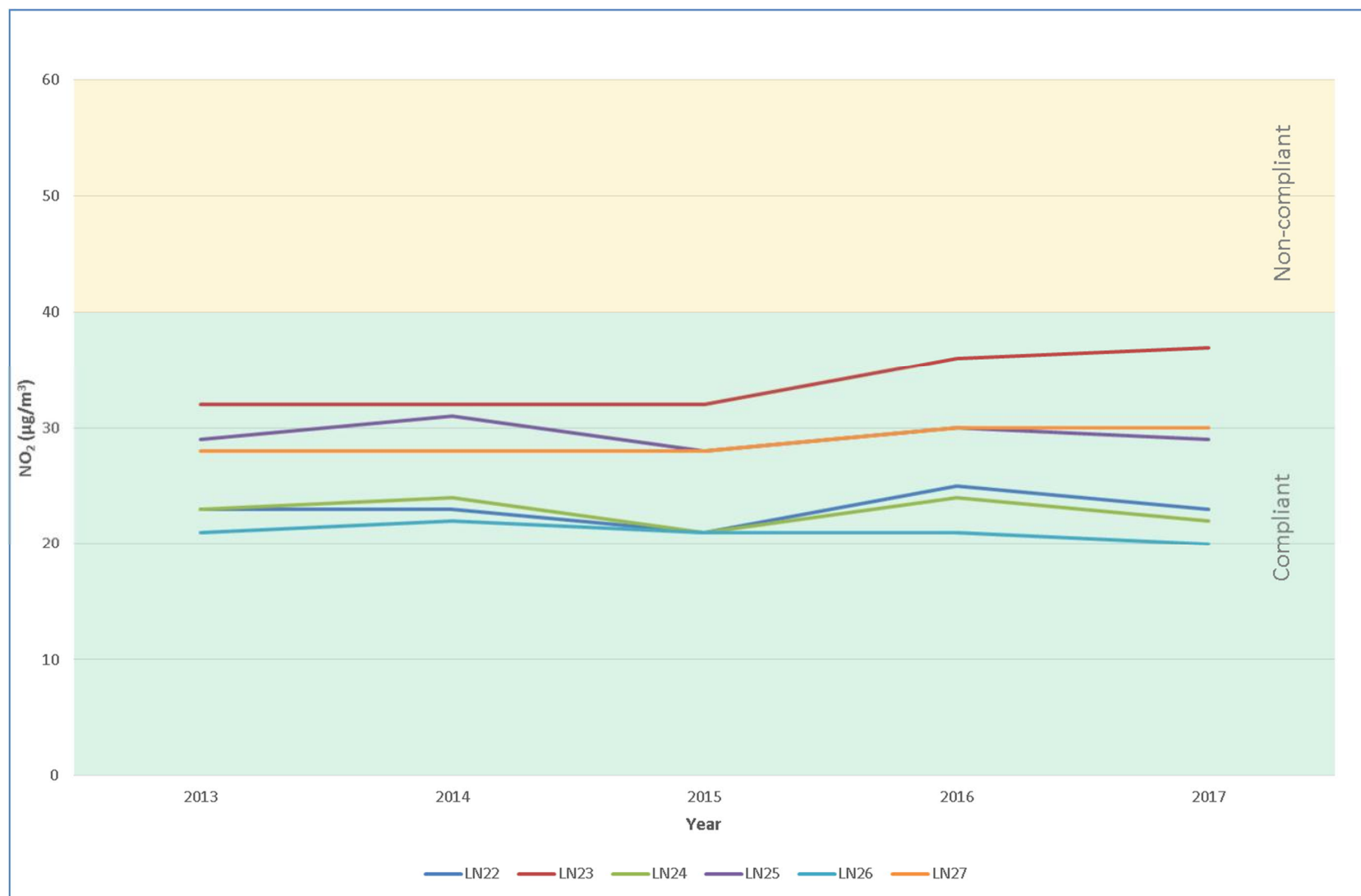
g) Annual Mean NO₂ Levels: Non-AQMA locations in Central / North Luton



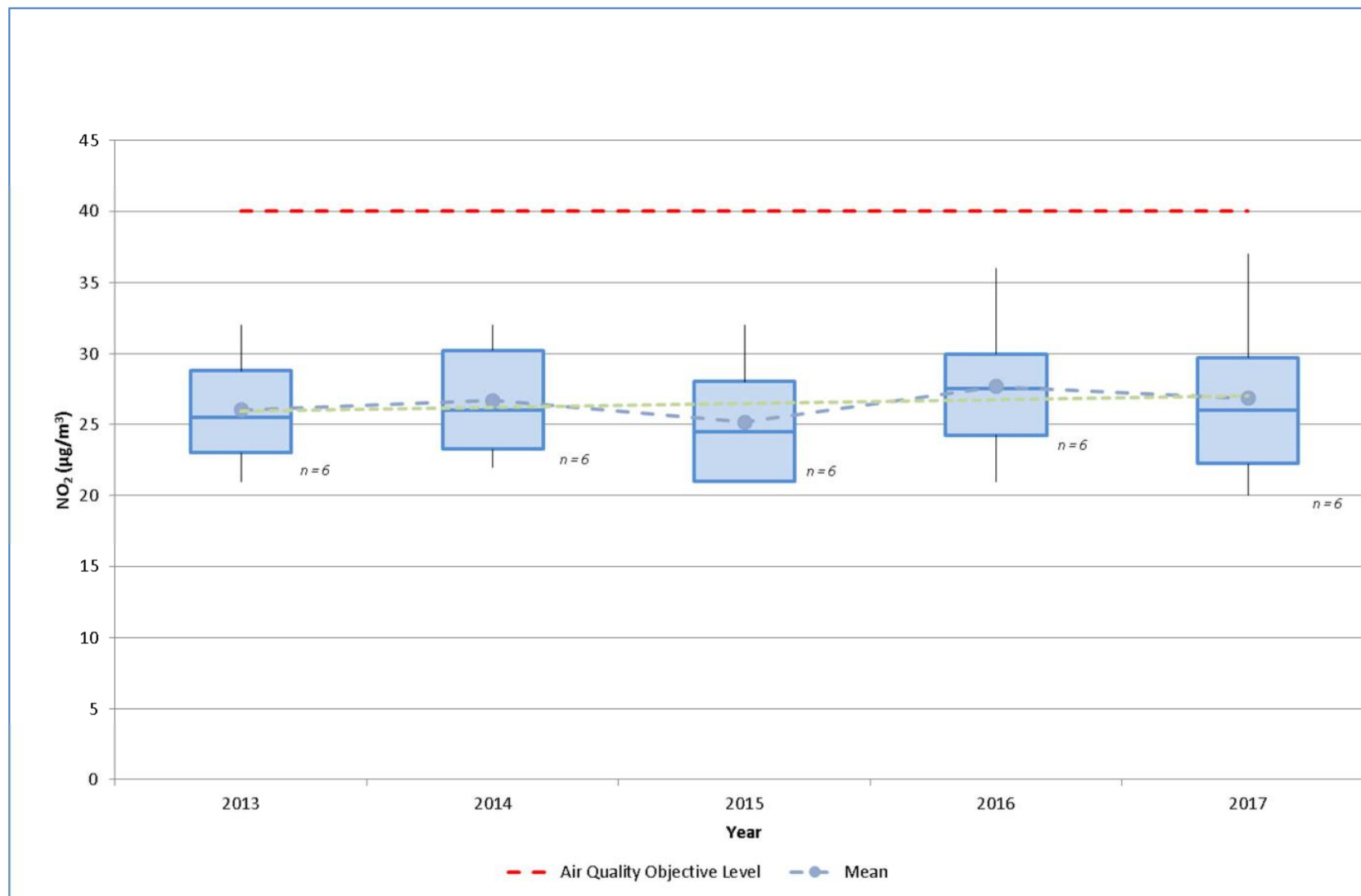
h) Box Plot of Annual Mean NO₂ Levels: Non-AQMA locations in Central / North Luton



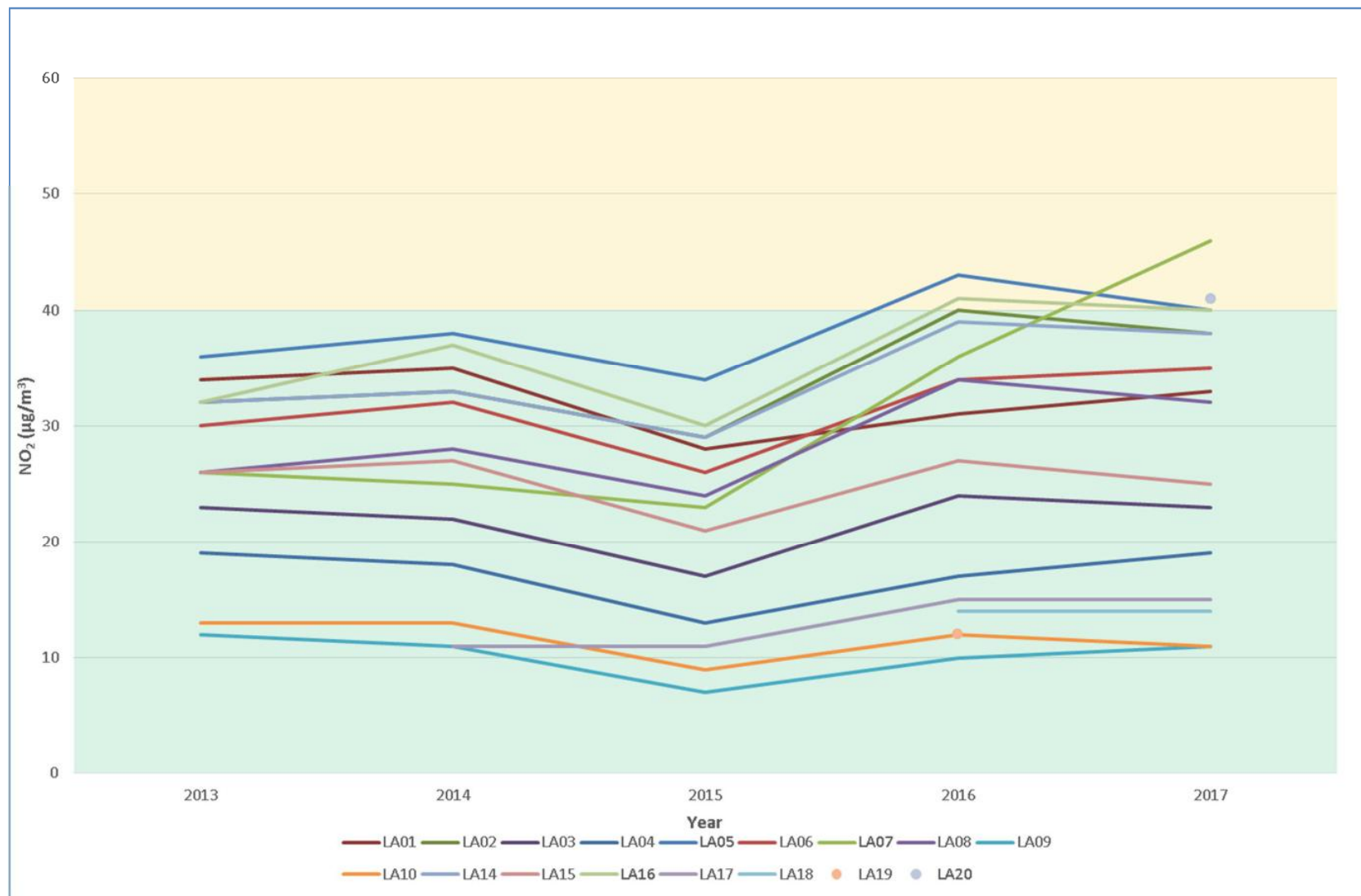
i) Annual Mean NO₂ Levels: Locations in East Luton (Luton Borough Council Monitoring sites)



j) Box Plot of Annual Mean NO₂ Levels: Locations in East Luton (LBC Monitoring sites)



k) Annual Mean NO₂ Levels: London Luton Airport Monitoring Sites



I) Box Plot of Annual Mean NO₂ Levels: London Luton Airport Monitoring Sites

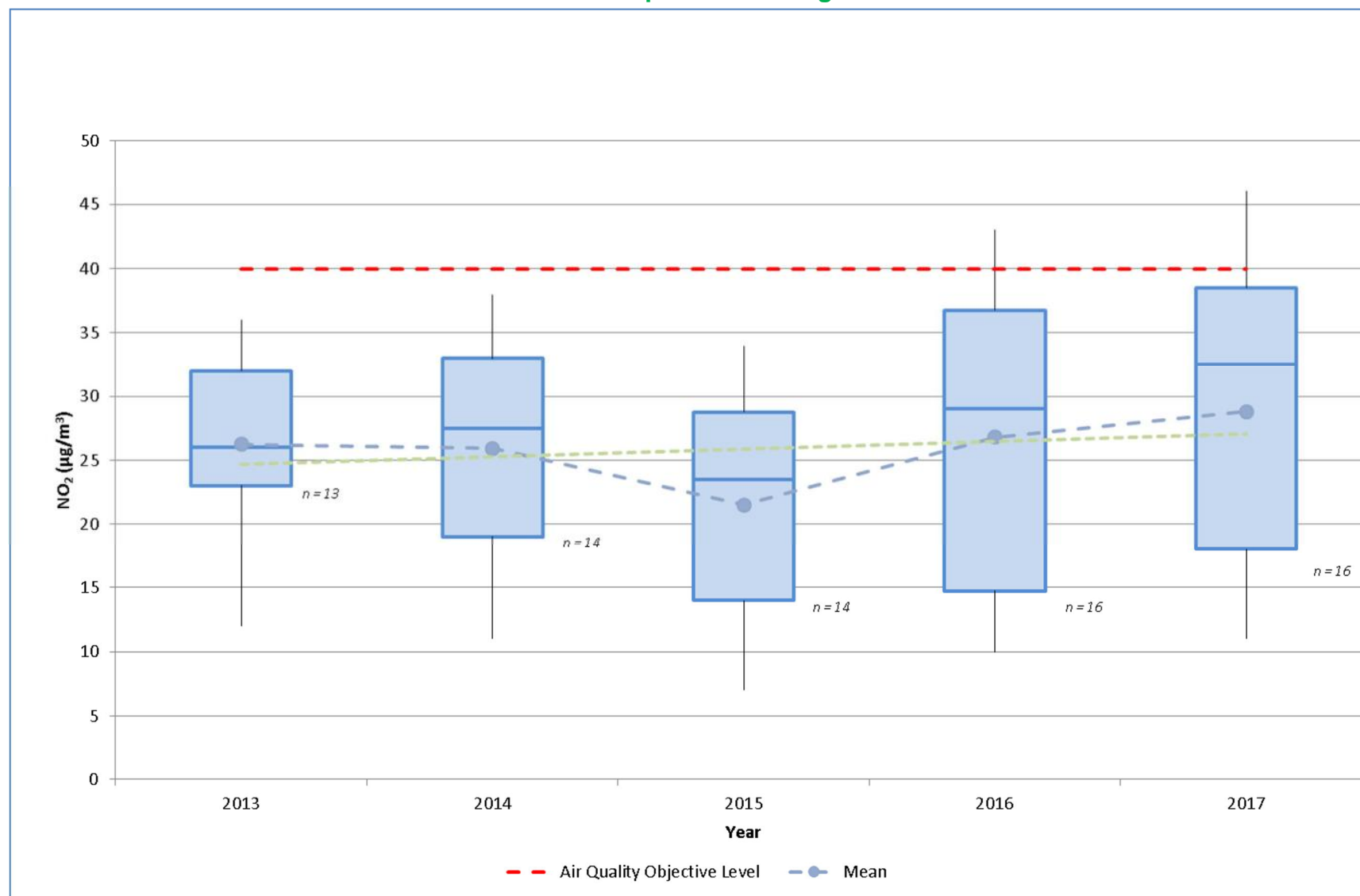


Table A.4 – 1-Hour Mean NO₂ Monitoring Results

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2017 (%) ⁽²⁾	NO ₂ 1-Hour Means > 200µg/m ³ ⁽³⁾				
					2013	2014	2015	2016	2017
LN60 (HB007)	Roadside	Automatic	93	93	NDA	NDA	0	2	0
CM2 (LUTR; UKA00605)	Roadside	Automatic	97	97	NDA	NDA	1	16	6

Notes:

Exceedances of the NO₂ 1-hour mean objective (200µg/m³ not to be exceeded more than 18 times/year) are shown in **bold**.

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

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

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

Table A.5 – Annual Mean PM₁₀ Monitoring Results

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2017 (%) ⁽²⁾	PM ₁₀ Annual Mean Concentration (µg/m ³) ⁽³⁾				
				2013	2014	2015	2016	2017
LN60 (HB007)	Roadside	85	85	NDA	NDA	15	15	16
LA08 (HB006)	Urban Background	93	93	21	18	15	18	18

☒ Annualisation has been conducted where data capture is <75%

Notes:

Exceedances of the PM₁₀ annual mean objective of 40µg/m³ are shown in **bold**.

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

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

(3) All means have been “annualised” as per Boxes 7.9 and 7.10 in LAQM.TG16, valid data capture for the full calendar year is less than 75%. See Appendix C for details.

Table A.6 – 24-Hour Mean PM₁₀ Monitoring Results

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2017 (%) ⁽²⁾	PM ₁₀ 24-Hour Means > 50µg/m ³ ⁽³⁾				
				2013	2014	2015	2016	2017
LN60 (HB007)	Roadside	85	85	NDA	NDA	5	3	4
LA08 (HB006)	Urban Background	93	93	4	6	0	1	1

Notes:

Exceedances of the PM₁₀ 24-hour mean objective (50µg/m³ not to be exceeded more than 35 times/year) are shown in **bold**.

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

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

(3) If the period of valid data is less than 85%, the 90.4th percentile of 24-hour means is provided in brackets.

Table A.7 – PM_{2.5} Monitoring Results

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2017 (%) ⁽²⁾	PM _{2.5} Annual Mean Concentration (µg/m ³) ⁽³⁾				
				2013	2014	2015	2016	2017
LN60 (HB007)	Roadside	85	85	NDA	NDA	9	10	10

☒ Annualisation has been conducted where data capture is <75%

Notes:

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

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

(3) All means have been “annualised” as per Boxes 7.9 and 7.10 in LAQM.TG16, valid data capture for the full calendar year is less than 75%. See Appendix C for details.

Appendix B: Full Monthly Diffusion Tube Results for 2017

Table B.1 – NO₂ Monthly Diffusion Tube Results – 2017

a) Luton Borough Council (LBC) sites

Site ID	NO ₂ Mean Concentrations (µg/m ³)														
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
													Raw Data	Bias Adjusted (0.89) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾
LN07	50.62	-	26.17	27.31	28.86	23.08	21.34	30.35	28.11	28.20	35.50	30.06	30.0	26.7	26.2
LN11	54.17	37.70	38.72	48.62	42.03	31.34	29.30	34.30	36.12	32.18	40.83	35.65	38.4	34.2	34.2
LN15	52.31	35.62	29.16	33.18	27.81	25.03	24.80	35.67	31.63	31.79	39.01	36.07	33.5	29.8	29.8
LN16	58.92	40.49	45.99	40.90	31.51	32.48	30.00	38.55	40.29	34.48	44.43	37.61	39.6	35.3	35.3
LN17	65.67	50.10	41.67	33.55	46.63	36.69	30.70	36.62	35.82	-	36.19	30.56	40.4	35.9	32.2
LN18	44.36	32.54	29.59	24.35	30.18	20.83	17.67	-	23.54	22.28	30.76	25.89	27.5	24.4	24.4
LN22	45.03	28.17	25.60	20.83	22.40	19.68	18.97	22.55	23.37	22.92	31.88	27.57	25.8	22.9	22.9
LN23	58.87	47.97	30.89	40.55	37.35	37.27	33.69	42.56	42.90	40.37	43.38	38.05	41.2	36.6	31.0
LN24	43.87	-	23.00	22.48	18.08	15.97	16.08	20.99	23.64	25.02	31.96	29.85	24.6	21.9	21.9
LN25	47.07	32.81	32.56	28.03	29.15	25.43	25.71	32.37	33.46	32.59	37.48	30.07	32.2	28.7	22.1
LN26	37.43	20.90	22.44	18.16	16.78	15.86	15.85	21.22	22.07	23.43	25.71	25.15	22.1	19.7	19.7
LN27	51.80	35.11	36.59	29.38	28.70	27.47	25.79	34.57	32.15	35.52	34.81	33.56	33.8	30.1	25.5
LN28	72.15	47.39	50.75	54.62	48.34	48.24	-	57.16	50.70	44.70	45.10	43.94	51.2	45.6	29.8

Site ID	NO ₂ Mean Concentrations (µg/m ³)														
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
													Raw Data	Bias Adjusted (0.89) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾
LN52	71.41	49.85	50.44	55.45	64.88	43.66	35.35	44.65	45.02	36.87	44.85	37.05	48.3	43.0	43.0
LN53	54.07	-	40.27	36.50	33.33	-	27.15	38.29	35.72	33.77	39.37	33.22	37.2	33.1	33.1
LN54	53.01	37.35	37.54	33.41	-	34.61	29.66	39.81	39.09	35.91	43.55	31.59	37.8	33.6	33.6
LN55	50.36	39.90	37.22	43.79	29.83	34.29	31.78	39.71	37.13	34.86	34.28	35.70	37.4	33.3	33.3
LN56	48.93	33.53	34.81	35.03	31.06	30.32	32.05	34.75	34.73	35.34	37.44	35.00	35.3	31.4	31.4
LN61	76.68	47.75	53.23	44.63	51.73	38.50	35.01	45.66	47.16	44.33	55.59	39.63	48.3	43.0	37.2
LN62	66.88	48.42	47.99	42.97	51.68	41.54	32.62	43.71	46.50	40.96	45.35	44.61	46.1	41.0	35.9
LN63	70.09	47.00	48.60	48.78	52.01	39.10	33.15	35.91	44.53	48.39	47.77	46.38	46.8	41.7	36.3
LN64	49.95	36.35	35.54	34.29	37.90	25.90	22.72	41.55	32.43	28.40	36.02	33.93	34.6	30.8	30.8
LN65	43.98	30.21	28.69	30.68	28.70	19.65	21.66	25.82	26.66	23.79	31.38	32.84	28.7	25.5	25.0
LN66	79.87	44.91	42.13	38.87	34.51	43.48	31.57	30.93	38.13	37.98	53.93	47.58	43.7	38.9	34.2
LN67	73.83	45.30	46.27	43.31	58.57	45.21	42.71	49.48	42.73	38.00	42.88	38.04	47.2	42.0	42.0
LN68	48.91	37.90	38.78	34.11	30.69	27.37	29.34	38.54	34.79	36.09	44.53	38.46	36.6	32.6	32.6
LN69	54.53	38.10	34.46	32.11	38.41	28.45	28.39	34.70	32.23	30.83	37.83	32.76	35.2	31.4	31.4
LN70	57.85	40.45	37.74	37.35	38.43	34.93	29.39	36.44	34.86	33.21	37.87	37.14	38.0	33.8	33.8
LN71	44.79	32.62	33.39	32.02	35.20	32.06	31.82	37.28	36.10	30.73	41.22	37.40	35.4	31.5	31.5
LN72	48.34	-	34.27	35.00	30.92	28.97	25.72	35.49	32.22	31.75	35.39	-	33.8	30.1	30.1
LN73	69.13	-	55.73	41.56	49.13	42.43	39.51	47.84	44.94	42.97	44.54	46.15	47.6	42.4	42.4
LN74	63.59	41.38	42.41	43.16	45.35	42.93	38.84	45.04	38.86	37.27	42.73	42.19	43.6	38.8	38.8

Site ID	NO ₂ Mean Concentrations (µg/m ³)												Annual Mean		
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Raw Data	Bias Adjusted (0.89) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾
LN75	61.54	36.58	41.42	41.94	44.33	38.88	36.04	46.79	42.85	37.27	49.00	40.70	43.1	38.4	38.4
LN76	57.02	35.65	41.49	29.38	37.29	30.13	28.08	32.98	32.92	29.37	37.06	-	35.6	31.7	31.7
LN77	58.76	39.64	40.00	43.97	38.96	35.76	36.91	42.20	37.21	34.89	42.06	41.48	41.0	36.5	36.5
LN78	54.42	39.02	36.33	34.53	29.08	28.48	26.08	36.05	34.24	32.42	42.66	38.66	36.0	32.0	32.0
LN79	56.35	34.78	41.31	35.22	37.60	26.67	28.40	36.28	36.85	30.33	40.69	38.89	37.0	32.9	32.9
LN80	59.76	-	35.97	<i>1.40*</i>	-	32.96	30.34	37.11	38.28	-	39.48	35.17	38.6	34.4	34.4
LN81	60.57	43.74	45.30	45.38	32.72	<i>9.35*</i>	24.85	41.10	39.06	43.03	51.53	43.90	42.8	38.1	38.1
LN82	48.37	39.88	39.89	35.11	26.40	27.52	29.79	37.59	35.75	34.26	41.32	38.96	36.2	32.3	32.3
LN83	48.08	33.65	26.82	23.40	31.77	20.79	21.36	23.60	23.03	21.68	28.78	27.60	27.6	24.5	24.5
LN84	53.47	35.72	32.29	26.90	33.03	22.48	21.55	24.18	26.01	24.77	33.58	-	30.4	27.0	27.0
LN86	69.61	46.87	48.05	44.55	-	37.86	37.56	51.96	44.96	43.19	55.62	42.03	47.5	41.9	41.9

☐ Local bias adjustment factor used

☒ National bias adjustment factor used

☒ Annualisation has been conducted where data capture is <75%

☒ Where applicable, data has been distance corrected for relevant exposure

Notes:

Exceedances of the NO₂ annual mean objective of 40µg/m³ are shown in **bold**.

NO₂ annual means exceeding 60µg/m³, indicating a potential exceedance of the NO₂ 1-hour mean objective are shown in **bold and underlined**.

- * Excluded as outlier
- (1) See Appendix C for details on bias adjustment and annualisation.
- (2) Distance corrected to nearest relevant public exposure.

b) London Luton Airport (LLA) sites

Site ID	NO ₂ Mean Concentrations (µg/m ³)														
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
													Raw Data	Bias Adjusted (0.97) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾
LA01	45.92	38.51	29.10	26.22	27.11	31.19	29.80	34.89	35.42	37.24	38.06	37.39	34.2	33.2	33.2
LA02	54.77	42.74	37.05	37.32	31.80	35.31	33.42	37.58	36.76	36.17	40.94	41.72	38.8	37.6	37.6
LA03	43.34	26.66	22.20	19.12	16.79	15.40	16.81	17.78	21.38	-	29.01	26.69	23.2	22.5	22.5
LA04	33.13	23.19	18.24	13.63	11.72	17.60	13.00	15.85	17.60	19.81	20.44	25.19	19.1	18.5	18.5
LA05	54.01	46.82	40.44	38.60	36.78	36.35	34.46	38.54	44.61	37.70	44.49	44.45	41.4	40.2	40.2
LA06	53.13	39.72	33.08	34.42	31.44	31.86	27.74	32.62	35.56	34.37	41.77	41.26	36.4	35.3	35.3
LA07	47.04	44.85	38.50	38.76	38.31	56.12	45.62	58.96	47.34	48.72	54.84	50.67	47.5	46.1	46.1
LA08	43.05	33.37	34.82	27.88	31.43	30.34	27.27	32.38	31.26	33.32	30.20	35.33	32.6	31.6	31.6
LA09	21.03	14.82	10.11	7.39	7.43	6.87	6.94	6.70	8.64	10.67	15.61	15.36	11.0	10.6	10.6
LA10	20.83	15.75	10.60	8.45	9.12	6.70	7.48	8.01	10.46	10.98	14.71	13.63	11.4	11.1	11.1
LA14	50.95	42.65	41.87	34.01	33.79	40.01	33.30	35.78	37.28	38.66	40.68	41.69	39.22	38.05	38.05
LA15	42.33	31.70	28.61	11.71	20.98	19.56	19.90	22.14	25.69	28.03	31.91	28.60	25.93	25.15	25.15
LA16	56.38	46.30	42.40	35.35	38.20	34.31	36.86	37.79	37.44	41.72	-	42.37	40.83	39.60	39.60
LA17	27.53	19.12	14.16	12.37	10.63	8.36	9.66	11.63	13.95	13.09	20.34	19.36	15.02	14.57	14.57
LA18	27.43	18.24	14.31	11.71	10.41	11.26	10.19	10.65	14.08	15.42	-	-	14.37	13.94	13.94

Site ID	NO ₂ Mean Concentrations (µg/m³)														
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
													Raw Data	Bias Adjusted (0.97) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾
LA20	-	-	37.23	40.95	33.72	38.29	38.10	43.53	40.65	33.34	79.01	40.02	42.48	41.21	41.21

- ☐ Local bias adjustment factor used
☒ National bias adjustment factor used
☒ Annualisation has been conducted where data capture is <75%
☒ Where applicable, data has been distance corrected for relevant exposure

Notes:

Exceedances of the NO₂ annual mean objective of 40µg/m³ are shown in **bold**.

NO₂ annual means exceeding 60µg/m³, indicating a potential exceedance of the NO₂ 1-hour mean objective are shown in **bold and underlined**.

⁽¹⁾ See Appendix C for details on bias adjustment and annualisation.

⁽²⁾ Distance corrected to nearest relevant public exposure.

Appendix C: Supporting Technical Information / Air Quality Monitoring Data QA/QC

Automatic Monitoring

The nitrogen dioxide analyser on Dunstable Road East (LN60) is subject to fortnightly routine calibration by a Luton Borough Council Officer. The co-located FIDAS particulate analyser does not require calibration.

All automatic monitoring data collected at the Dunstable Road East, London Luton Airport (LA08) and Luton A505 Roadside (CM2) sites is managed by Ricardo Energy & Environment using the quality control procedures utilised by Defra's national air quality network stations. These procedures represent best practice and fully meet the requirements set out in LAQM.TG(16). Ricardo Energy & Environment currently provide UKAS accredited quality control audits and data management services to all Defra national network (AURN) air quality monitoring stations.

All collected data is screened and scaled (based on site calibrations) and the final data set presented within this report (Figures C.1, C.2 and C.3) has benefitted from a full process of data ratification, including thorough additional data quality checks and a ratification process that corrects data for instrument sensitivity drift between routine calibrations.

Figure C.1 – 2017 Air Pollution Report – LN60: Luton Dunstable Road East (Site ID: HB007)

Air Pollution Report



1st January to 31st December 2017

Luton Dunstable Road East (Site ID: HB007)

These data have been fully ratified

Only relevant statistics for LAQM are presented in the table. Cells with - indicate no data available or calculated.

Pollutant	NO µg/m ³	NO ₂ µg/m ³	NO _x asNO ₂ µg/m ³	PM ₁₀ µg/m ³	PM _{2.5} µg/m ³
Number Days Low	-	354	-	307	305
Number Days Moderate	-	0	-	4	5
Number Days High	-	0	-	0	1
Number Days Very High	-	0	-	0	0
Max Daily Mean	315	117	592	61	55
Annual Max	886	200	1,555	226	84
Annual Mean	41	39	101	16	10
98th Percentile of daily mean	-	-	-	41	-
90th Percentile of daily mean	-	-	-	28	-
99.8th Percentile of hourly mean	-	163	-	-	-
98th Percentile of hourly mean	202	103	409	51	39
95th Percentile of hourly mean	131	85	280	40	29
50th Percentile of hourly mean	24	34	71	12	7
% Annual data capture	93.14%	93.14%	93.14%	85.37%	85.35%

Instruments:

PM₁₀: FIDAS

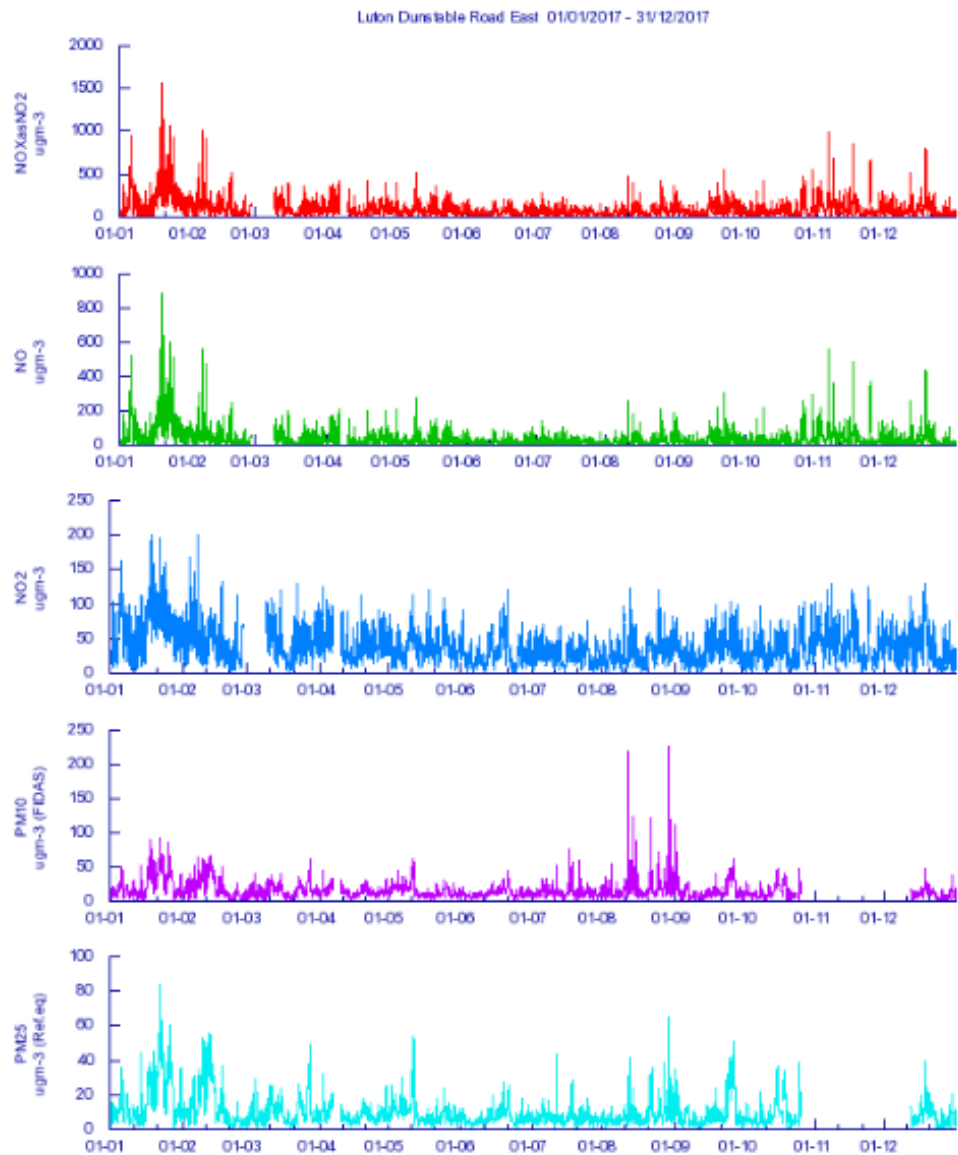
All gaseous pollutant mass units are at 20°C and 1013mb. Particulate matter concentrations are reported at ambient temperature and pressure. NO_x mass units are NO_x as NO₂ µg m⁻³

Report produced by Ricardo Energy & Environment

Pollutant	Air Quality Standards regulations 2010	Exceedances	Days
PM ₁₀ particulate matter (Hourly measured)	daily mean > 50 microgrammes per metre cubed	4	4
PM ₁₀ particulate matter (Hourly measured)	Annual mean > 40 microgrammes per metre cubed	0	-
Nitrogen dioxide	Hourly Mean > 200 microgrammes per metre cubed	0	0
Nitrogen dioxide	Annual Mean > 40 microgrammes per metre cubed	0	-

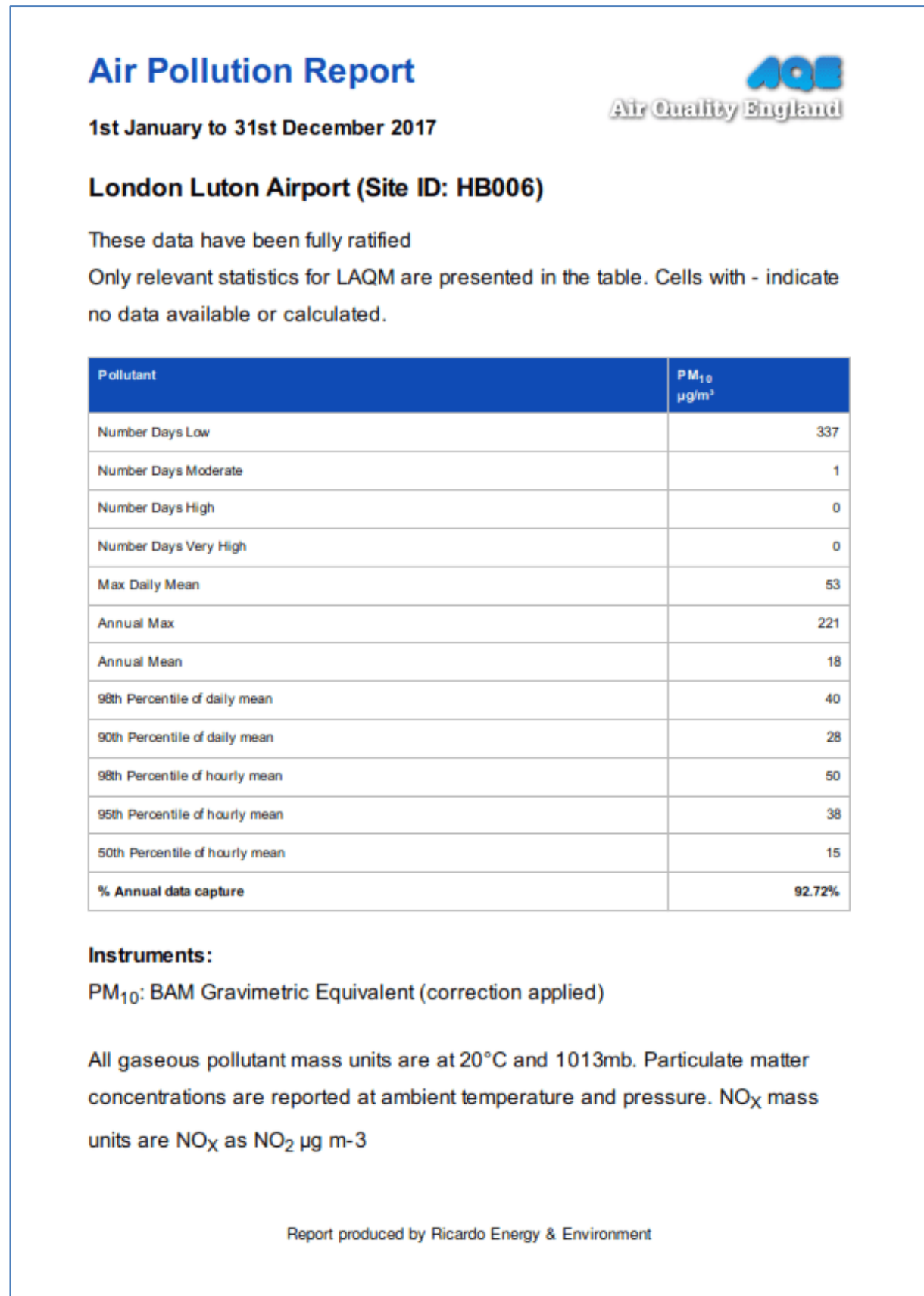
Report produced by Ricardo Energy & Environment

Annual Graph



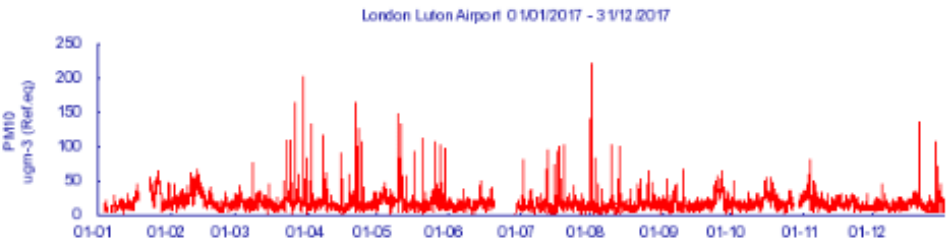
Report produced by Ricardo Energy & Environment

Figure C.2 – 2017 Air Pollution Report – LA08: London Luton Airport (Site ID: HB006)



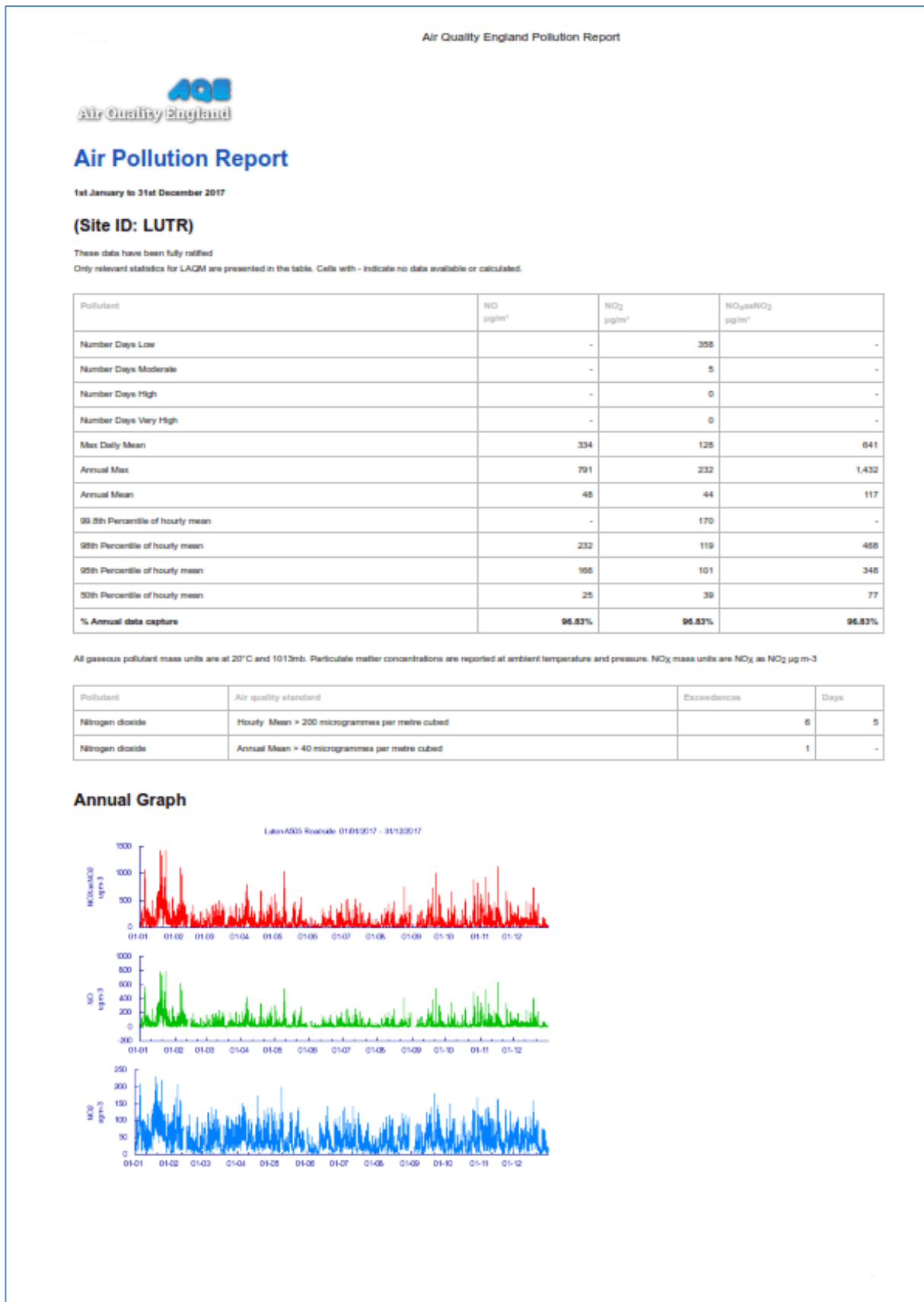
Pollutant	Air Quality Standards regulations 2010	Exceedances	Days
PM ₁₀ particulate matter (Hourly measured)	daily mean > 50 microgrammes per metre cubed	1	1
PM ₁₀ particulate matter (Hourly measured)	Annual mean > 40 microgrammes per metre cubed	0	-

Annual Graph



Report produced by Ricardo Energy & Environment

Figure C.3 – 2016 Air Pollution Report – CM2: Luton A505 Roadside (Site ID: LUTR)



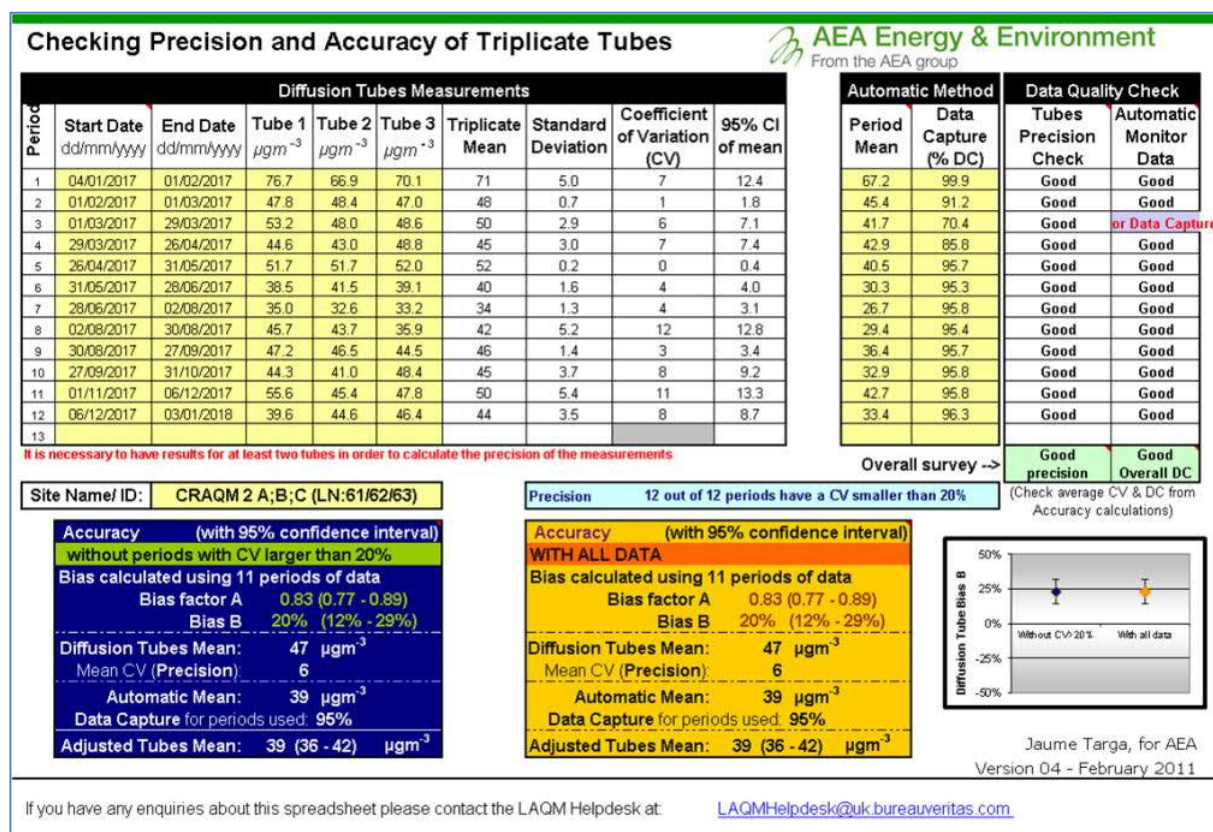
Diffusion Tube Analysis

The tubes deployed by Luton Borough Council are supplied by Gradko International Ltd. and use a preparation of 20% Triethanolamine (TEA) in deionised water. The exposed tubes are analysed in accordance with Gradko's documented in-house *Laboratory Method GLM7* which complies with the guidelines set out in Defra's '*Diffusion Tubes for Ambient NO₂ Monitoring: Practical Guidance*'. The analysis of diffusion tube samples to determine the amount of nitrogen dioxide present on the tubes is within the scope of their UKAS schedule. Gradko participates in the AIR NO₂ PT scheme, the results of which indicate that during 2017 100% of QC samples were analysed satisfactorily. During the same period, reported nitrogen dioxide diffusion tube collocation studies indicated that the laboratory achieved good precision in 37 out of 39 studies assessed.

Using the AEA_DifTPAB_v04.xls spreadsheet published on the Defra LAQM Support website to check the precision of collocated tubes, the results for the triplicate tubes collocated with the continuous analyser on Dunstable Road East were shown to demonstrate "*Good precision*" (see Figure C.4).

The tubes deployed by London Luton Airport are also supplied by Gradko International Ltd. but use a preparation of 50% TEA in acetone.

Figure C.4 – Precision and Accuracy of Diffusion Tubes Collocated with the NO₂ Analyser on Dunstable Road East (LN60)



Diffusion Tube Bias Adjustment

As well as evaluating the precision of the collocated diffusion tubes, corresponding autoanalyser data was input into AEA_DifPAB_v04.xls to calculate a local bias adjustment factor of 0.83 for the LBC diffusion tubes (see Figure C.4).

Consulting the *National Diffusion Tube Bias Adjustment Factor Spreadsheet Version 03/18* published on the Defra LAQM Support website, for Gradko during 2017 a national bias adjustment factor of 0.89 was obtained for the LBC tubes (20% TEA in water - based on 34 studies; Figure C.5) and 0.97 for LLA tubes (50% TEA in acetone – based on 22 studies; Figure C.6).

Although there is only 7% difference between the two LBC adjustment values, the choice of local or national bias correction factor does have a significant impact on the 2017 diffusion tube results – as can be seen in Table C.1. If the locally derived factor is used there is an across the board decrease in NO₂ levels with the occurrence of only 3 exceedances, all of which are readily explainable (x2 in AQMA No. 3 and the other being LN28 – *Caddington Road* which is not representative of relevant exposure). However, if the national factor is used the extent of the decrease is

checked and the number of exceedances doubles to 6. Having given due consideration to the guidance in Box 7.11 of LAQM.TG16, a decision was made to take a precautionary approach and apply the national coefficient.

Table C.1 – Comparison of diffusion tube output obtained using local and national bias correction factors

	Local	National
Bias Correction Factor	0.83	0.89
Percentage Difference	7.0%	
Number of unique exceedances	3	6
Max	42.5µg/m ³	45.6µg/m ³
Min	18.3µg/m ³	19.7µg/m ³
Range	24.2µg/m ³	25.9µg/m ³
Average	31.2µg/m ³	33.5µg/m ³
Higher than previous year	0	1
Lower than previous year	37	31
Unchanged	0	5
Max increase	-	1µg/m ³ (2%)
Max decrease	-9µg/m ³ (-20%)	-6µg/m ³ (-14%)
Average increase	-4.3µg/m ³ (-12.0%)	-2.0µg/m ³ (-5.6%)

Figure C.5 – National Bias Adjustment Factor – LBC (20% TEA in water)

National Diffusion Tube Bias Adjustment Factor Spreadsheet						Spreadsheet Version Number: 03/18				
<p>Follow the steps below in the correct order to show the results of relevant co-location studies</p> <p>Data only apply to tubes exposed monthly and are not suitable for correcting individual short-term monitoring periods</p> <p>Whenever presenting adjusted data, you should state the adjustment factor used and the version of the spreadsheet</p> <p>This spreadsheet will be updated every few months: the factors may therefore be subject to change. This should not discourage their immediate use.</p> <p>The LAQM Helpdesk is operated on behalf of Defra and the Devolved Administrations by Bureau Veritas, in conjunction with contract partners AECOM and the National Physical Laboratory.</p> <p>Spreadsheet maintained by the National Physical Laboratory. Original compiled by Air Quality Consultants Ltd.</p>						<p>This spreadsheet will be updated at the end of June 2018</p> <p>LAQM Helpdesk Website</p>				
<p>Step 1:</p> <p>Select the Laboratory that Analyses Your Tubes from the Drop-Down List</p> <p>If a laboratory is not shown, we have no data for this laboratory.</p>		<p>Step 2:</p> <p>Select a Preparation Method from the Drop-Down List</p> <p>If a preparation method is not shown, we have no data for this method at this laboratory.</p>		<p>Step 3:</p> <p>Select a Year from the Drop-Down List</p> <p>If a year is not shown, we have no data</p>		<p>Step 4:</p> <p>Where there is only one study for a chosen combination, you should use the adjustment factor shown with caution. Where there is more than one study, use the overall factor³ shown in blue at the foot of the final column.</p> <p>If you have your own co-location study then see footnote⁴. If uncertain what to do then contact the Local Air Quality Management Helpdesk at LAQMHelpdesk@uk.bureauveritas.com or 0800 0327953</p>				
Analysed By ¹	Method ²	Year ²	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (µg/m ³)	Automatic Monitor Mean Conc. (Cm) (µg/m ³)	Bias (B)	Tube Precision ⁵	Bias Adjustment Factor (A) (Cm/Dm)
Gradiko	20% TEA in water	2017	UB	Bracknell Forest Borough Council	11	19	16	23.0%	G	0.81
Gradiko	20% TEA in water	2017	R	Bracknell Forest Borough Council	12	47	39	21.7%	G	0.82
Gradiko	20% TEA in water	2017	R	Brighton & Hove City Council	11	51	50	1.6%	G	0.98
Gradiko	20% TEA in water	2017	R	Wokingham Borough Council	11	39	37	4.6%	G	0.96
Gradiko	20% TEA in water	2017	UC	Southampton City Council	11	31	29	5.3%	G	0.95
Gradiko	20% TEA in water	2017	R	Preston City Council	12	31	26	23.3%	G	0.81
Gradiko	20% TEA in water	2017	R	Monmouthshire County Council	9	42	33	26.6%	G	0.79
Gradiko	20% TEA in water	2017	R	Cheshire West and Chester	11	36	36	1.4%	G	0.99
Gradiko	20% TEA in water	2017	UB	Crawley Borough Council	12	28	28	-1.2%	G	1.01
Gradiko	20% TEA in water	2017	R	Borough Council of King's Lynn & West Norfolk	12	29	25	16.0%	G	0.86
Gradiko	20% TEA in water	2017	R	Bath & North East Somerset	12	45	45	-0.2%	G	1.00
Gradiko	20% TEA in water	2017	R	NOTTINGHAM CITY COUNCIL	12	38	41	-6.6%	G	1.07
Gradiko	20% TEA in water	2017	R	Lancaster City Council	12	35	32	9.7%	G	0.91
Gradiko	20% TEA in water	2017	R	Thurrock Borough Council	12	54	52	3.3%	S	0.97
Gradiko	20% TEA in water	2017	R	Thurrock Borough Council	11	35	33	7.0%	G	0.93
Gradiko	20% TEA in water	2017	R	Thurrock Borough Council	9	33	29	14.3%	G	0.87
Gradiko	20% TEA in water	2017	UB	Thurrock Borough Council	11	30	28	8.0%	S	0.93
Gradiko	20% TEA in water	2017	R	Dudley MBC	12	50	50	0.8%	G	0.99
Gradiko	20% TEA in water	2017	UB	Dudley MBC	12	24	19	26.6%	G	0.79
Gradiko	20% TEA in water	2017	R	City of Lincoln Council	12	42	31	33.2%	G	0.75
Gradiko	20% TEA in water	2017	R	Gedling Borough Council	12	35	31	10.1%	G	0.91
Gradiko	20% TEA in water	2017	R	Gateshead Council	12	36	37	-2.7%	G	1.03
Gradiko	20% TEA in water	2017	R	Gateshead Council	12	29	25	17.5%	G	0.85
Gradiko	20% TEA in water	2017	R	Gateshead Council	12	34	35	-5.3%	G	1.06
Gradiko	20% TEA in water	2017	R	LB Hounslow	12	65	54	22.2%	G	0.82
Gradiko	20% TEA in water	2017	R	LB Hounslow	12	59	53	10.6%	G	0.90
Gradiko	20% TEA in water	2017	B	LB Hounslow	11	28	30	-6.0%	G	1.06
Gradiko	20% TEA in water	2017	R	LB Hounslow	11	43	34	26.8%	G	0.78
Gradiko	20% TEA in water	2017	B	LB Hounslow	9	38	33	14.9%	G	0.87
Gradiko	20% TEA in water	2017	R	LB Hounslow	11	52	42	24.4%	G	0.80
Gradiko	20% TEA in water	2017	UB	Liverpool	11	20	17	15.2%	G	0.87
Gradiko	20% TEA in water	2017	R	North Ayrshire Council	12	26	21	23.2%	G	0.81
Gradiko	20% TEA in water	2017	R	South Gloucestershire Council	12	25	23	10.3%	G	0.91
Gradiko	20% TEA in water	2017	KS	Marylebone Road Intercomparison	12	101	79	26.6%	G	0.78
Gradiko	20% TEA in water	2017		Overall Factor³ (34 studies)					Use	0.89
<p>¹ For Casella Seal/OMSS/Casella CRE/Bureau Veritas Labs/Eurofins use Environmental Scientific Groups.</p> <p>For Casella Seal/OMSS/Casella CRE/Bureau Veritas Labs/Eurofins use Environmental Scientific Groups.</p> <p>From 2011 for Environmental Scientific Groups use ESG Glasgow.</p> <p>From 2011 for Harwell Scientific Services use ESG Didcot.</p> <p>For 2017 for SOCOtec use ESG Didcot, as name changed mid year.</p> <p>For Staffordshire CC SS/Staffordshire County Analyst use Staffordshire Scientific Services.</p> <p>For Bodycote Health Sciences and Clyde Analytical Laboratories use Exova.</p> <p>For Rotherham MBC use South Yorkshire Labs.</p> <p>For Dundee CC use Tayside SS.</p> <p>For Leicester Scientific Services use Staffordshire Scientific Services.</p> <p>For South Yorkshire Air Quality Samplers use South Yorkshire Labs. As of January 2010 sampler body changed. As of April 2010 sampler cap changed.</p> <p>Lancashire County Analysts withdrew from the Field Intercomparison at the end of 2010. No submissions were supplied in 2011.</p> <p>Walsall MBC closed in March 2011.</p> <p>Bristol Scientific Services closed at the end of 2011.</p> <p>Somerset County Council did not start the Marylebone road intercomparison until June 2012.</p> <p>Exova stopped providing diffusion tubes at the end of 2013.</p> <p>Kent Scientific Services stopped providing diffusion tubes at the end of 2013.</p> <p>Wiltshire Council stopped providing diffusion tubes in the middle of 2016.</p> <p>² In this situation it would be reasonable to use data from the nearest year.</p> <p>³ Overall factors have been calculated using orthogonal regression to allow for uncertainty in both the automatic monitor and diffusion tube. The uncertainty of the diffusion tube has been assumed to be double that of the automatic monitor.</p> <p>⁴ If you have your own co-location study, please send your data to us, so that it can be included here. If this is not possible, but you wish to combine these factors with your own, select and copy the relevant data from this spreadsheet and paste them into a new one (otherwise your calculations will include hidden data). Then add your own data and calculate the bias. To obtain a new correction factor that includes your data, average the bias (B) values, expressed as a factor, i.e. -16% is -0.16. Next add 1 to this value, e.g. -0.16 + 1.00 = 0.84 in this example, then take the inverse to give the bias adjustment factor 1/0.84 = 1.19. (This will not be exactly the same as the correction factor calculated using orthogonal regression as used in this spreadsheet, but will be reasonably close).</p> <p>⁵ Where an annual data set falls into two years it has been ascribed to the year in which most of the data has fallen.</p> <p>⁶ Tube precision is determined as follows: G = Good precision - coefficient of variation (CV) of diffusion tube replicates is considered G when the CV of eight or more periods is less than 20%, and the average CV of all monitoring periods is less than 10%; P = Poor precision - CV of four or more periods >20% and/or average CV >10%; S = Single tube, therefore not applicable; na = not available.</p>										

Figure C.6 – National Bias Adjustment Factor – LLA (50% TEA in acetone)

National Diffusion Tube Bias Adjustment Factor Spreadsheet						Spreadsheet Version Number: 03/18				
<p>Follow the steps below in the correct order to show the results of relevant co-location studies</p> <p>Data only apply to tubes exposed monthly and are not suitable for correcting individual short-term monitoring periods</p> <p>Whenever presenting adjusted data, you should state the adjustment factor used and the version of the spreadsheet</p> <p>This spreadsheet will be updated every few months: the factors may therefore be subject to change. This should not discourage their immediate use.</p> <p>The LAQM Helpdesk is operated on behalf of Defra and the Devolved Administrations by Bureau Veritas, in conjunction with contract partners AECOM and the National Physical Laboratory.</p> <p>Spreadsheet maintained by the National Physical Laboratory. Original compiled by Air Quality Consultants Ltd.</p>						<p>This spreadsheet will be updated at the end of June 2018</p> <p>LAQM version: 03/18</p>				
Step 1:		Step 2:		Step 3:		Step 4:				
Select the Laboratory that Analyses Your Tubes from the Drop-Down List		Select a Preparation Method from the Drop-Down List		Select a Year from the Drop-Down List		Where there is only one study for a chosen combination, you should use the adjustment factor shown with caution. Where there is more than one study, use the overall factor ¹ shown in blue at the foot of the final column.				
If a laboratory is not shown, we have no data for this laboratory.		If a preparation method is not shown, we have no data for this method at this laboratory.		If a year is not shown, we have no data ² .		If you have your own co-location study then see footnote ³ . If uncertain what to do then contact the Local Air Quality Management Helpdesk at LAQMHelpdesk@uk.bureauveritas.com or 0800 0327953				
Analysed By ⁴	Method ⁵	Year ⁶	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (µg/m ³)	Automatic Monitor Mean Conc. (Cm) (µg/m ³)	Bias (B)	Tube Precision ⁷	Bias Adjustment Factor (A) (Cm/Dm)
Gradio	50% TEA in acetone	2017	R	West Berkshire	12	40	40	0.3%	G	1.00
Gradio	50% TEA in acetone	2017	UB	London Borough of Camden	12	40	40	1.9%	G	0.98
Gradio	50% TEA in acetone	2017	B	London Borough of Richmond upon Thames	12	21	21	0.4%	G	1.00
Gradio	50% TEA in acetone	2017	R	London Borough of Richmond upon Thames	12	35	31	11.6%	G	0.90
Gradio	50% TEA in acetone	2017	R	Royal Borough of Greenwich	12	33	36	-7.6%	G	1.08
Gradio	50% TEA in acetone	2017	R	Royal Borough of Greenwich	12	40	39	2.1%	G	0.98
Gradio	50% TEA in acetone	2017	R	Royal Borough of Greenwich	10	75	66	12.7%	G	0.89
Gradio	50% TEA in acetone	2017	R	Royal Borough of Greenwich	12	44	39	13.6%	G	0.88
Gradio	50% TEA in acetone	2017	R	Royal Borough of Greenwich	11	49	41	17.1%	G	0.85
Gradio	50% TEA in acetone	2017	SU	Royal Borough of Greenwich	12	20	21	-1.1%	G	1.01
Gradio	50% TEA in acetone	2017	UI	Falkirk Council	12	18	17	5.0%	G	0.95
Gradio	50% TEA in acetone	2017	R	Falkirk Council	10	38	35	8.3%	G	0.92
Gradio	50% TEA in acetone	2017	R	LB Newham	12	38	48	-19.6%	G	1.24
Gradio	50% TEA in acetone	2017	B	The City of London Corporation	12	41	38	8.7%	P	0.92
Gradio	50% TEA in acetone	2017	UI	Middlebrough	10	17	14	21.3%	G	0.82
Gradio	50% TEA in acetone	2017	UB	Norwich City Council	11	13	14	-4.6%	G	1.05
Gradio	50% TEA in acetone	2017	R	RBMM	12	39	38	2.4%	G	0.98
Gradio	50% TEA in acetone	2017	R	RBMM	12	35	34	1.1%	G	0.99
Gradio	50% TEA in acetone	2017	UB	Reading Borough Council	12	20	29	-31.4%	G	1.46
Gradio	50% TEA in acetone	2017	SU	Redcar and Cleveland Borough Council	11	15	11	28.4%	P	0.78
Gradio	50% TEA in acetone	2017	R	Worthing Borough Council	12	42	38	9.0%	G	0.92
Gradio	50% TEA in acetone	2017	KS	Marylebone Road Intercomparison	12	83	79	6.0%	G	0.94
Gradio	50% TEA in acetone	2017		Overall Factor ¹ (22 studies)					Use	0.97
<p>¹ For Casella Sealing/Bureau Veritas (not Bureau Veritas Calox) use Gradio 50% TEA in acetone.</p> <p>For Casella Seal/GMSS/Casella CRE/Bureau Veritas Labs/Eurofins/ use Environmental Scientific Groups.</p> <p>From 2011 for Environmental Scientific Groups use ESG Glasgow.</p> <p>From 2011 for Harwell Scientific Services use ESG Didcot.</p> <p>For 2017 for SOCOtec use ESG Didcot, as name changed mid year.</p> <p>For Staffordshire CC SS/Staffordshire County Analyst use Staffordshire Scientific Services.</p> <p>For Bodycote Health Sciences and Clyde Analytical Laboratories use Exova.</p> <p>For Rotherham MBC use South Yorkshire Labs.</p> <p>For Dundee CC use Tayside SS.</p> <p>For Leicester Scientific Services use Staffordshire Scientific Services.</p> <p>For South Yorkshire Air Quality Samplers use South Yorkshire Labs. As of January 2010 sampler body changed. As of April 2010 sampler cap changed.</p> <p>Lancashire County Analysts withdrew from the Field Intercomparison at the end of 2010. No submissions were supplied in 2011.</p> <p>Walsall MBC closed in March 2011.</p> <p>Bristol Scientific Services closed at the end of 2011.</p> <p>Somerset County Council did not start the Marylebone road intercomparison until June 2012.</p> <p>Exova stopped providing diffusion tubes at the end of 2013.</p> <p>Kent Scientific Services stopped providing diffusion tubes at the end of 2013.</p> <p>Kirklees Council stopped providing diffusion tubes in the middle of 2016.</p> <p>² In this situation it would be reasonable to use data from the nearest year.</p> <p>³ Overall factors have been calculated using orthogonal regression to allow for uncertainty in both the automatic monitor and diffusion tube. The uncertainty of the diffusion tube has been assumed to be double that of the automatic monitor.</p> <p>⁴ If you have your own co-location study, please send your data to us, so that it can be included here. If this is not possible, but you wish to combine these factors with your own, select and copy the relevant data from this spreadsheet and paste them into a new one (otherwise your calculations will include hidden data). Then add your own data and calculate the bias. To obtain a new correction factor that includes your data, average the bias (B) values, expressed as a factor, i.e. -16% is -0.16. Next add 1 to this value, e.g. -0.16 + 1.00 = 0.84 in this example, then take the inverse to give the bias adjustment factor 1/0.84 = 1.19. (This will not be exactly the same as the correction factor calculated using orthogonal regression as used in this spreadsheet, but will be reasonably close).</p> <p>⁵ Where an annual data set falls into two years it has been ascribed to the year in which most of the data has fallen.</p> <p>⁶ Tube precision is determined as follows: G = Good precision - coefficient of variation (CV) of diffusion tube replicates is considered G when the CV of eight or more periods is less than 20%, and the average CV of all monitoring periods is less than 10%; P = Poor precision - CV of four or more periods >20% and/or average CV >10%; S = Single tube, therefore not applicable; na = not available.</p>										

Diffusion Tube Distance Correction

Wherever possible diffusion tube monitoring locations are selected to be representative of exposure. However, where this is not practicable measurements should be adjusted to estimate the nitrogen dioxide concentration at the nearest location relevant for exposure.

Where necessary, this correction has been undertaken using the *NO₂ Fall-Off with Distance Calculator Version 4.2* available on the Defra LAQM Support website along with mean background NO₂ concentrations obtained from the 2015-based background NO₂ map for 2017.

Appendix D: Maps of Monitoring Locations and AQMAs

Figure D.1 – Map of LBC & Defra NO₂ Monitoring Locations and AQMA Boundaries (AQMA Nos. 1 & 2) by M1

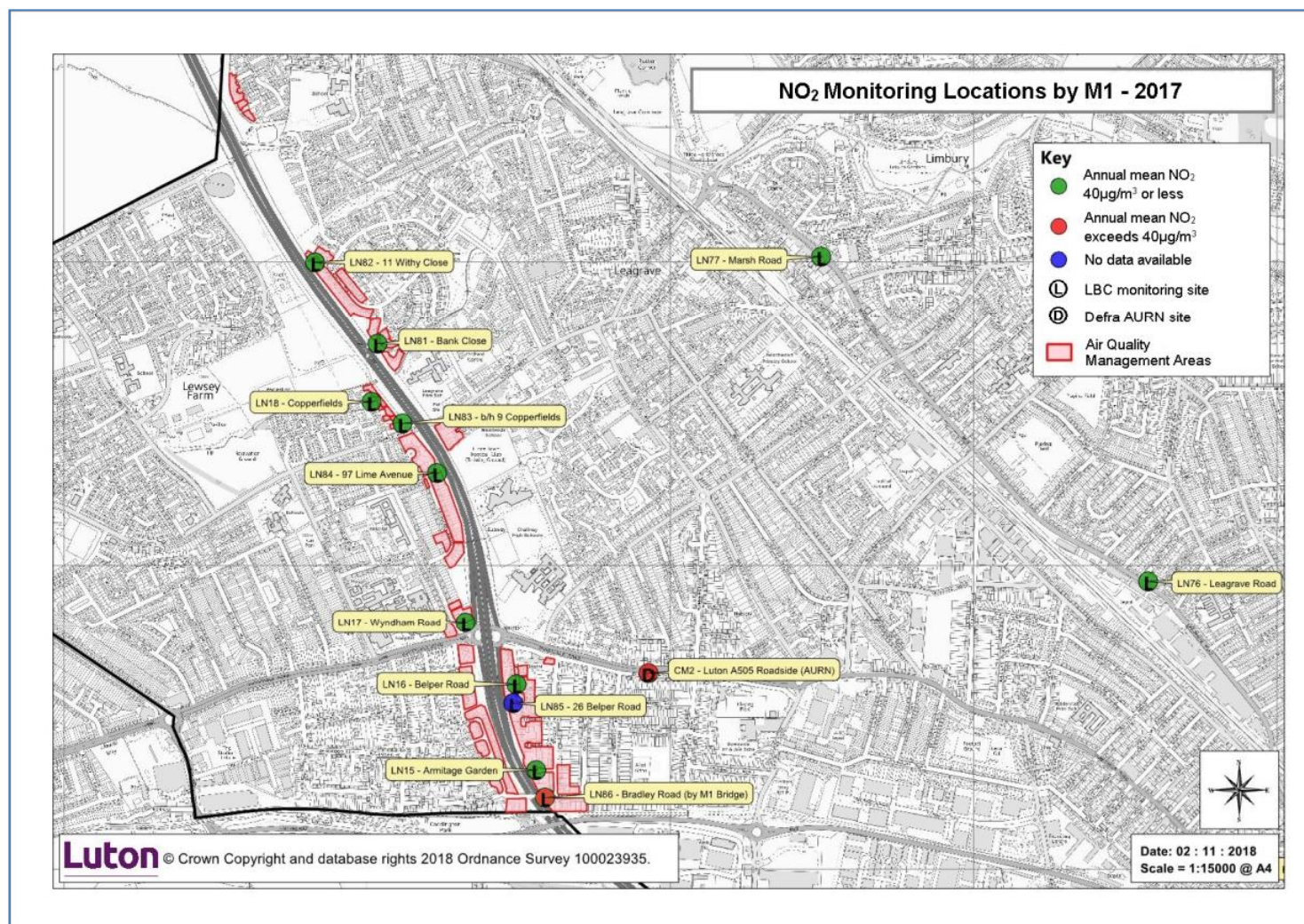


Figure D.2 – Map of LBC NO₂ Monitoring Locations in South Luton by M1

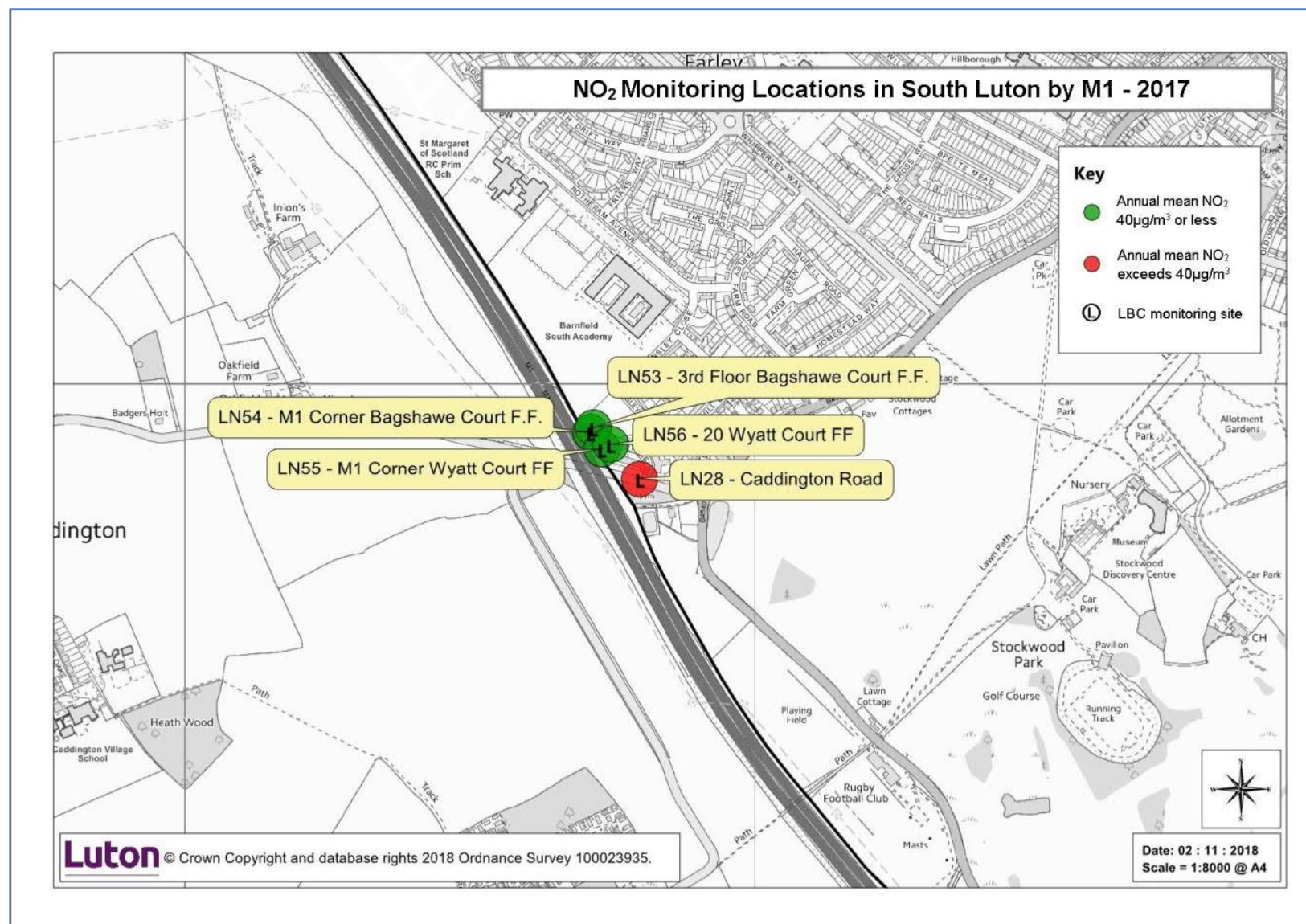


Figure D.3 – Map of LBC NO₂ Monitoring Locations and AQMA Boundaries (AQMA No. 3) in the Town Centre

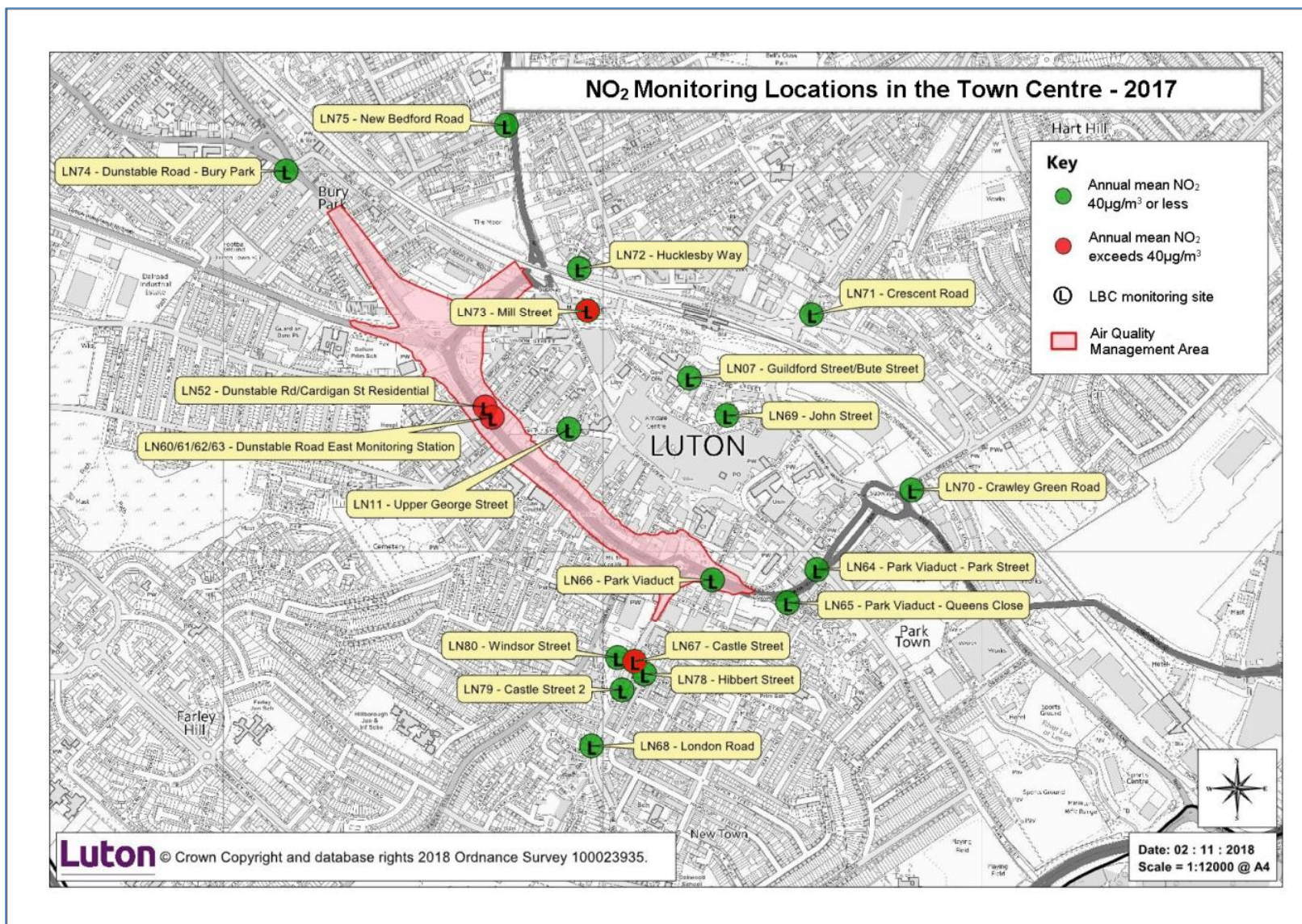
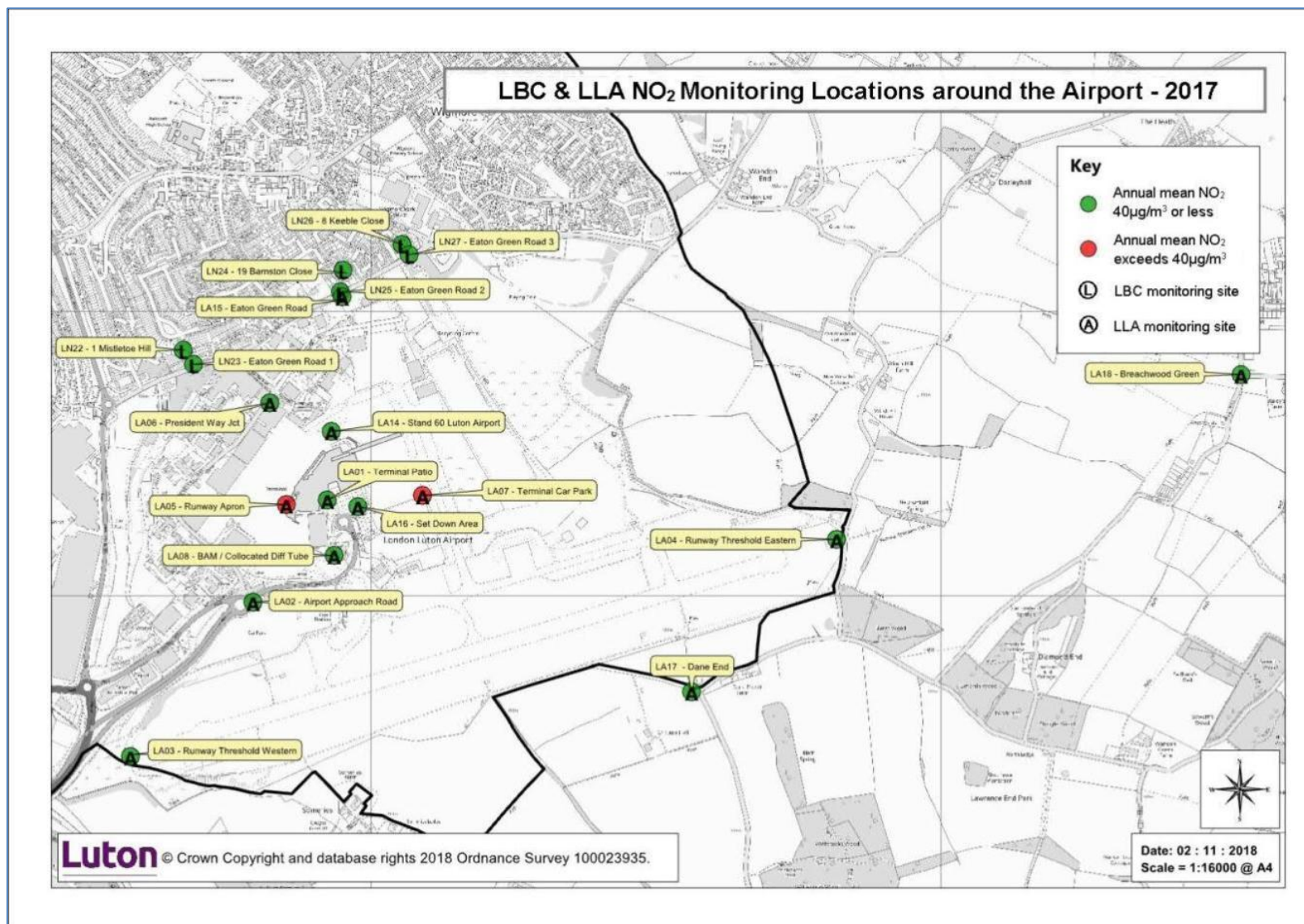


Figure D.4 – Map of LBC & LLA NO₂ Monitoring Locations around the Airport



Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England

Pollutant	Air Quality Objective ⁴	
	Concentration	Measured as
Nitrogen Dioxide (NO ₂)	200 µg/m ³ not to be exceeded more than 18 times a year	1-hour mean
	40 µg/m ³	Annual mean
Particulate Matter (PM ₁₀)	50 µg/m ³ , not to be exceeded more than 35 times a year	24-hour mean
	40 µg/m ³	Annual mean
Sulphur Dioxide (SO ₂)	350 µg/m ³ , not to be exceeded more than 24 times a year	1-hour mean
	125 µg/m ³ , not to be exceeded more than 3 times a year	24-hour mean
	266 µg/m ³ , not to be exceeded more than 35 times a year	15-minute mean

⁴ The units are in microgrammes of pollutant per cubic metre of air (µg/m³).

Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the local authority intends to achieve air quality limit values'
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
ASR	Air quality Annual Status Report
BID	Business Improvement District
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by Highways England
EA	Environment Agency
EU	European Union
EV	Electric Vehicle
FDMS	Filter Dynamics Measurement System
LAQM	Local Air Quality Management
LAQM.TG(16)	Local Air Quality Management Technical Guidance (TG16) [February 2018]
LBC	Luton Borough Council
LLA	London Luton Airport
NO ₂	Nitrogen Dioxide
NO _x	Nitrogen Oxides
PM ₁₀	Airborne particulate matter with an aerodynamic diameter of 10µm (micrometres or microns) or less
PM _{2.5}	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less

QA/QC	Quality Assurance and Quality Control
SO ₂	Sulphur Dioxide
TEA	Triethanolamine
ULEV	Ultra-Low Emission Vehicle
UTMC	Urban Traffic Management and Control
VMS	Variable-message sign

References

- DEFRA, (2018). *Local Air Quality Management: Technical Guidance (TG16)*. London [<https://tinyurl.com/yaegeqpm>]
- Luton Borough Council, (2011). *Luton Local Transport Plan 3*. Luton [<https://tinyurl.com/y9r4vhkf>]
- Luton Borough Council, (2017). *Luton Local Plan 2011 – 2031*. Luton [<https://tinyurl.com/y9339fc8>]