Royal Borough of Kensington and Chelsea
Air Quality Annual Status Report for 2017
Date of publication: November 2018

This report provides a detailed overview of air quality in the Royal Borough of Kensington and Chelsea during 2017. It has been produced to meet the requirements of the London Local Air Quality Management statutory process[1].

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Configuration			
Version	**Date**	**Summary of changes**	**Status**
01	31/05/2018	Note ratified diffusion tube data not available	Final
02	13/11/2018	Diffusion Tube Data updated to reflect ratified data in Final London Wide Environment Programme Diffusion Tube Study released 16.10.2018	Final

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[1] LLAQM Policy and Technical Guidance 2016 (LLAQM.TG(16)). https://www.london.gov.uk/what-we-do/environment/pollution-and-air-quality/working-boroughs

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Abbreviations

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

Table A.   Summary of National Air Quality Standards and Objectives

Pollutant	Objective (UK)	Averaging Period	Date[1]
Nitrogen dioxide - NO_2	200 $\mu g\ m^{-3}$ not to be exceeded more than 18 times a year	1-hour mean	31 Dec 2005
	40 $\mu g\ m^{-3}$	Annual mean	31 Dec 2005
Particles - PM_{10}	50 $\mu g\ m^{-3}$ not to be exceeded more than 35 times a year	24-hour mean	31 Dec 2004
	40 $\mu g\ m^{-3}$	Annual mean	31 Dec 2004
Particles - $PM_{2.5}$	25 $\mu g\ m^{-3}$	Annual mean	2020
	Target of 15% reduction in concentration at urban background locations	3 year mean	Between 2010 and 2020
Sulphur Dioxide (SO_2)	266 $\mu g\ m^{-3}$ not to be exceeded more than 35 times a year	15 minute mean	31 Dec 2005
	350 $\mu g\ m^{-3}$ not to be exceeded more than 24 times a year	1 hour mean	31 Dec 2004
	125 $\mu g\ m^{-3}$ not to be exceeded more than 3 times a year	24 hour mean	31 Dec 2004

Note: [1] by which to be achieved by and maintained thereafter

Figure 1. Map of RBKC AQMA Boundary

1. Air Quality Monitoring

1.1 Locations

Table B.   Details of Automatic Monitoring Sites for 2017

Site ID	Site Name	X (m)	Y (m)	Site Type	In AQMA?	Distance from monitoring site to relevant exposure (m)	Distance to kerb of nearest road (N/A if not applicable) (m)	Inlet height (m)	Pollutants monitored	Monitoring technique
KC1	North Kensington	524045	181752	Urban Background LAQN &AURN affiliate	Y	Y- 10M	Approx. within 8m of St Charles Square	3	Nitrogen oxides PM_{10} Carbon monoxide Sulphur dioxide Ozone Other Defra/ERG monitoring undertaken: PM_{10} & $PM_{2.5}$	Chemiluminescent FDMS GFC Fluorescence UV Photometric
AURN to Sept 2012	Cromwell Rd/ Cromwell Rd 2	26524	178965	Roadside, AURN	Y	Y - 10m	4m from Cromwell Road	2	Nitrogen oxides Carbon monoxide Sulphur dioxide Other monitoring undertaken: Lead and heavy metals	Chemiluminescent GFC Fluorescence UV Partisol
KC2	Cromwell Rd 2	26524	178965	Roadside,	Y	Y - 10m	Approx. within	2	PM_{10}	FDMS

Site ID	Site Name	X (m)	Y (m)	Site Type	In AQMA?	Distance from monitoring site to relevant exposure (m)	Distance to kerb of nearest road (N/A if not applicable) (m)	Inlet height (m)	Pollutants monitored	Monitoring technique
				LAQN			4m of Cromwell Rd and 5m of Queens Gate.		PM$_{2.5}$	FDMS
AURN	West London Closed in 2007	25026	178741	Urban background AURN	Y	n/a	50m from Warwick Rd	n/a	Nitrogen oxides Carbon monoxide	Chemiluminescent
KC3	Knightsbridge	27518	179395	Kerbside, LAQN	Y	Y – 1m	Located on the kerb of Hans Road 1.5 and 4m from Brompton Rd	3	Nitrogen oxides	Chemiluminescent
KC4	Kings Rd Chelsea	27268	178089	Roadside, LAQN	Y	Y 14m	Approx. 8m from Kings Rd	3	Nitrogen oxides	Chemiluminescent
KC5	Earls Court	25695	178363	Kerbside, LAQN	Y	Y -1m	Sited on the kerb of Earls Court Rd (0.5m)	2	PM$_{10}$ gravimetric Nitrogen oxides	Partisol plus Chemiluminescent

Figure 2. Map of Automatic Monitoring Sites

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Status: Final
Date: April 2014
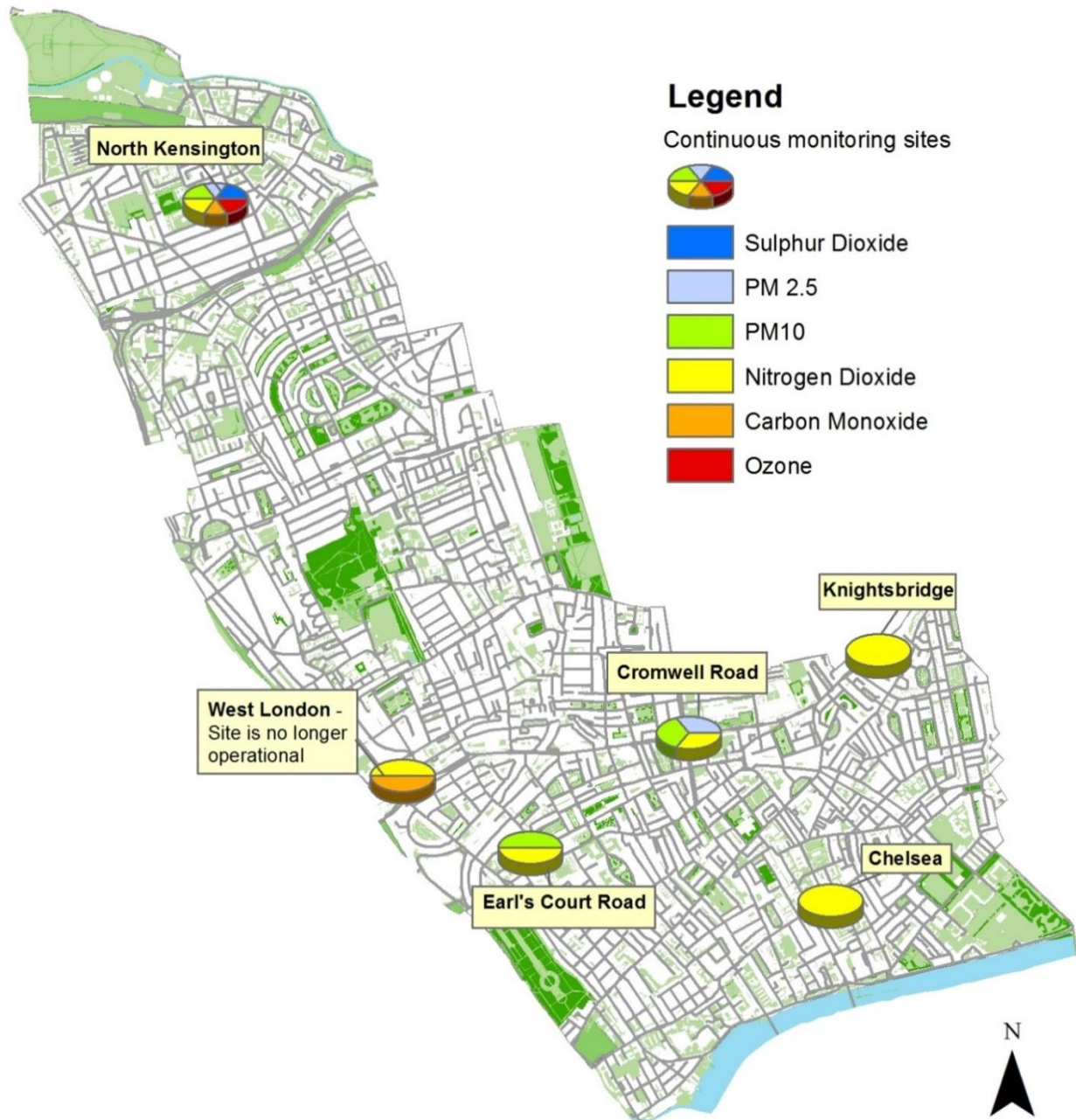Author: Environmental Quality

Table C.   Details of Non-Automatic Monitoring Sites for 2017

Site ID	Site Name	X (m)	Y (m)	Site Type	In AQMA?	Distance from monitoring site to relevant exposure (m)	Distance to kerb of nearest road (N/A if not applicable) (m)	Inlet height (m)	Pollutants monitored	Tube co-located with an automatic monitor? (Y/N)
KC31	Ladbroke Grove/North Kensington Library	X 524342	Y 181271	Roadside	Y	Y – 6	3.5	5	NO$_2$	N
KC32	Holland Park	X 524784	Y 179599	Urban Background	Y	Y – 5	380	4	NO$_2$	N
KC33	Cromwell Rd/ Earls Court Rd	X 525355	Y 178841	Roadside	Y	Y – 1	1.1	2.1	NO$_2$	N
KC34	Dovehouse Street	X 527164	Y 178103	Urban Centre	Y	Y – 30	26	2.8	NO$_2$	N
KC35	Brompton Road/ Cottage Place	X 527192	Y 179185	Roadside	Y	Y – 40	8	1.5	NO$_2$	N
KC38	Earls Court Station	X 525548	Y 178556	Roadside	Y	Y - 1	1.7	2.7	NO$_2$	N
KC39	Lots Road/ Upcerne Road	X 526317	Y 177022	Roadside	Y	Y – 30	8.1	2.5	NO$_2$	N
KC40	Brompton Road	X 527214	Y 179153	Urban Centre	Y	Y – 20	65	2.7	NO$_2$	N
KC41	Ladbroke Crescent	X 524294	Y 181200	Urban Background	Y	Y – 8	70	2.2	NO$_2$	N

Site ID	Site Name	X (m)	Y (m)	Site Type	In AQMA?	Distance from monitoring site to relevant exposure (m)	Distance to kerb of nearest road (N/A if not applicable) (m)	Inlet height (m)	Pollutants monitored	Tube co-located with an automatic monitor? (Y/N)
KC42	Pembridge Square Library	X 525191	Y 180705	Roadside	Y	Y – 9	6	3.1	NO$_2$	N
KC43	St Marks Grove	X 525950	Y 177487	Urban Background	Y	Y – 12	38	2.3	NO$_2$	N
KC44	Donne Place	X 527335	Y 178810	Urban Background	Y	Y – 15	55	2.4	NO$_2$	N
KC45	Chatsworth Court	X 525263	Y 178936	Roadside	Y	Y – 13	13	2	NO$_2$	N
KC46	Marlborough Court- closed	X 525157	Y 178892	Roadside	Y	Y n/a	8	2	NO$_2$	N
KC47	Sion Manning School	X 524046	Y 181758	Urban Background	Y	Y - 10	8.5	2.1	NO$_2$	Y
KC48	Sloane Square	X 528011	Y 178675	Roadside	Y	Y – 1	7	3	NO$_2$	N
KC49	Harrods	X 527516	Y 179395	Urban Centre	Y	Y – 1	4	2.5	NO$_2$	Y
KC50	Chelsea Physic Garden (Gate)	X 527726	Y 177727	Roadside	Y	Y – 1	4	2.9	NO$_2$	N
KC51	Chelsea Physic Garden (Met Station)	X 527690	Y 177800	Urban Background	Y	Y – 3	92	1.5	NO$_2$	N

Site ID	Site Name	X (m)	Y (m)	Site Type	In AQMA?	Distance from monitoring site to relevant exposure (m)	Distance to kerb of nearest road (N/A if not applicable) (m)	Inlet height (m)	Pollutants monitored	Tube co-located with an automatic monitor? (Y/N)
KC52	Sloane Avenue	X 527411	Y 178659	Roadside	Y	Y – 5	2.6	2.4	NO_2	N
KC53	Walmer House	X 523792	Y 181189	Urban Background	Y	Y – 20	12.5	2.3	NO_2	N
KC54	Cromwell Rd/ Natural History Museum	X 526550	Y 178968	Roadside	Y	Y – 10	3.1	2.6	NO_2	y
KC55	Blantyre St	X 526608	Y 177429	Urban Background	Y	Y - 20	100	3	NO_2	N
KC56	Chelsea Old Town Hall	X 527268	Y 178089	Roadside	Y	Y - 14	9	3.1	NO_2	Y
KC57	Pavilion St/ Sloane Ave	X 527889	Y 179145	Roadside	Y	Y – 25	3	2.4	NO_2	N
KC58	Kensington H St/Kensington Church St	X 525630	Y 179674	Roadside	Y	Y – 1	13	2.7	NO_2	N
KC59	Kensington High St/Argyll St	X 525342	Y 179464	Kerbside	Y	Y - 1	0.7	2.5	NO_2	N
KC60	Old Brompton Rd/ Draycott Ave	X 526231	Y 178425	Kerbside	Y	Y – 8	0.7	2.5	NO_2	N
KC61	Fulham Rd/Limerston St	X 526377	Y 177867	Roadside	Y	Y – 20	10	2.4	NO_2	N

Site ID	Site Name	X (m)	Y (m)	Site Type	In AQMA?	Distance from monitoring site to relevant exposure (m)	Distance to kerb of nearest road (N/A if not applicable) (m)	Inlet height (m)	Pollutants monitored	Tube co-located with an automatic monitor? (Y/N)
KC64	Warwick Road	X 524825	Y 178902	Roadside	Y	Y – 8	3.5	2.6	NO$_2$	N
KC65	Barlby Road	X 523899	Y 182113	Roadside	Y	Y – 20	0.5	2.5	NO$_2$	N
KC66	Acklam Road	X 524541	Y 181893	Railway	Y	Y – 18	16	2.5	NO$_2$	N
KC67	Southern Row	X 524056	Y 182148	Railway	Y	Y – 55	38	2.5	NO$_2$	N
KC68	Exhibition Road	X 526863	Y 179060	Kerbside	Y	Y – 0.5	0.5	2.1	NO$_2$	N
KC69	Darfield Way	X 523587	Y180893	Background	Y	Y – 2	11.7	2.0	NO2	N
KC01	Ladbroke Grove/Nth Ken Library	X 524342	Y 181271	Roadside	Y	Y – 6	3.5	5.5	Benzene	N
KC02	Holland Park	X 524784	Y 179599	Urban Background	Y	Y – 5	380	4	Benzene	N
KC03	Warwick Rd - Petrol Station (forecourt) now closed	X 524911	Y 178736	Petrol station	Y	Y – n/a	N/A	3	Benzene	N
KC04	Dovehouse Street	X 527111	Y 178165	Urban Background	Y	Y – 30	45	2.2	Benzene	N

Site ID	Site Name	X (m)	Y (m)	Site Type	In AQMA?	Distance from monitoring site to relevant exposure (m)	Distance to kerb of nearest road (N/A if not applicable) (m)	Inlet height (m)	Pollutants monitored	Tube co-located with an automatic monitor? (Y/N)
KC05	Pembridge Square Library	X 525191	Y 180705	Roadside	Y	Y – 9	6	4	Benzene	N
KC0X	Old Brompton Rd/ Clareville Grove Petrol St	X 526496	Y 178553	Petrol station	Y	Y - 3	12		Benzene	N

Grey highlighted row denotes closed site
Orange highlighted rows denote Benzene locations

Figure 3. Map of Non-Automatic Monitoring

Site code	Diffusion tube location
KC31	Ladbroke Grove/North Kensington Library
KC32	Holland Park
KC33	Cromwell Road/Earls Court Road
KC34	Dovehouse Street
KC35	Brompton Road/Cottage Place
KC38	Earls Court Station

Site code	Diffusion tube location
KC39	Lots Road/Upcerne Road
KC40	Brompton Road
KC41	Ladbroke Crescent
KC42	Pembridge Square
KC43	St Marks Grove
KC44	Donne Place
KC45	Chatsworth Court
KC46	Malborough Court -closed
KC47	Sion Manning School
KC48	Sloane Square
KC49	Harrods
KC50	Chelsea Physic Gardens 1
KC51	Chelsea Physic Gardens 2
KC52	Sloane Avenue School
KC53	Walmer House
KC54	Cromwell Road/Natural History Museum
KC55	Blantyre Street
KC56	Chelsea Old Town Hall
KC57	Pavillion St/Sloane Square
KC58	Kensington High Street/Campden Hill Rd
KC59	Kensington High Street/Argyll St
KC60	Old Brompton Rd
KC61	Fulham Rd/Limerston St
KC64	Warwick Road
KC65	Barlby Road
KC66	Acklam Road
KC67	Octavia House/Southern Row
KC68	Exhibition Road
KC69	Darfield Way

Legend

● NO2 diffusion tube sites

— Roads

Conservation sites

Borough boundary

N

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Status: Final
Date: April 2014
Author: Environmental Quality

Figure 4. Map of non-automatic benzene monitoring sites
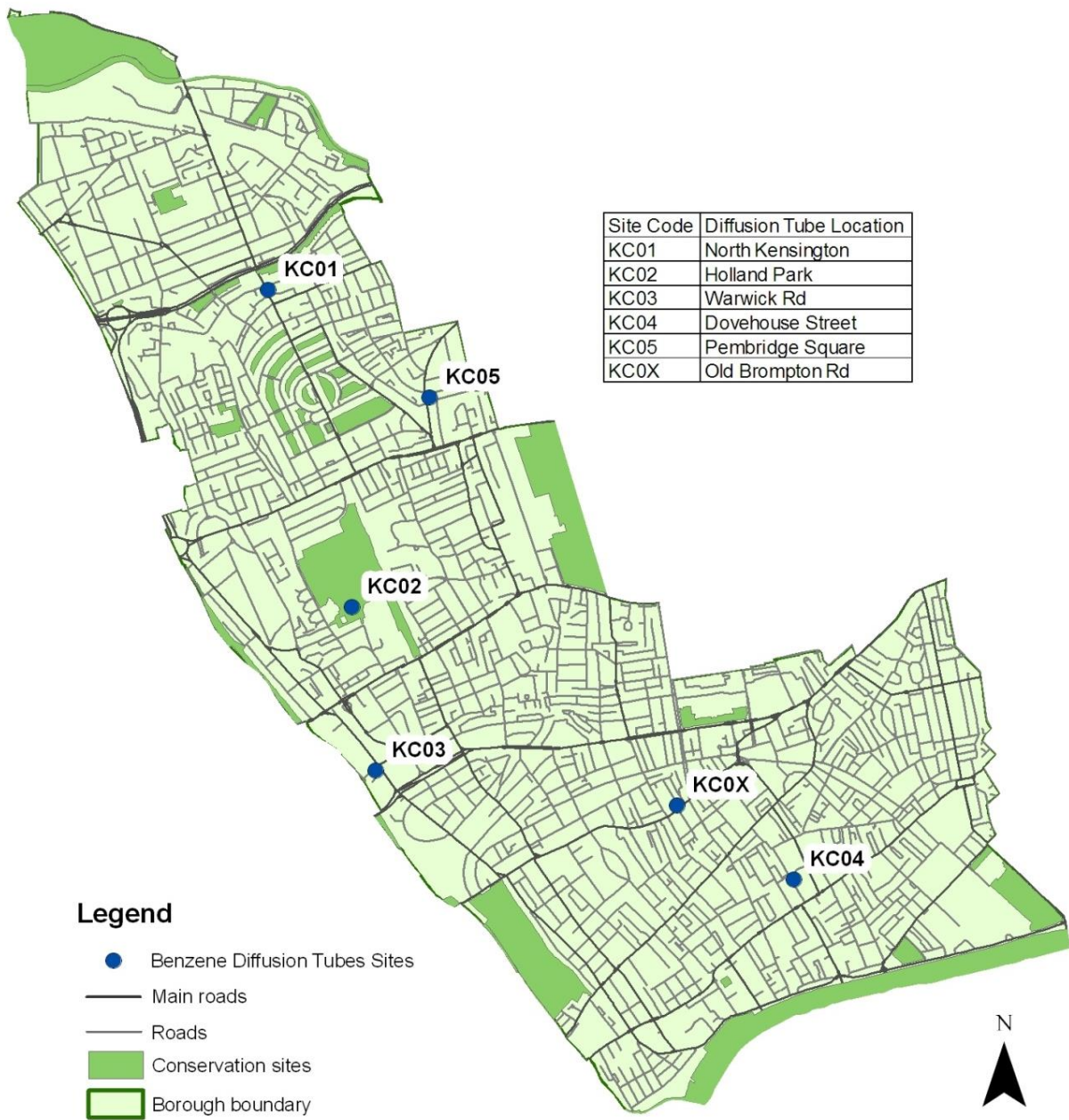
Site Code	Diffusion Tube Location
KC01	North Kensington
KC02	Holland Park
KC03	Warwick Rd
KC04	Dovehouse Street
KC05	Pembridge Square
KC0X	Old Brompton Rd

Legend

● Benzene Diffusion Tubes Sites
— Main roads
— Roads
▨ Conservation sites
▭ Borough boundary

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Status: Final
Date: April 2011
Author:Environmental Quality

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1.2 Comparison of Monitoring Results with AQOs

The results presented are after adjustments for "annualisation" and for distance to a location of relevant public exposure, the details of which are described in Appendix A.

Table D. Annual Mean NO$_2$ Ratified and Bias-adjusted Monitoring Results (µg m^{-3})

Site ID	Location	Site type	Valid data capture for monitoring period % [a]	Valid data capture 2017 % [b]	Annual Mean Concentration (µg m^{-3})							2017 Distance corrected
					2011 [c]	2012 [c]	2013 [c]	2014 [c]	2015 [c]	2016 [c]	2017 [c]	
KC1	North Kensington	Automatic	100%	100%	36	37	37	34[d]	32	35	33	N/A
KC2	Cromwell Rd 2	Automatic	98%	98%	66	69	60	56	55	58	51	54.5
KC3	Knightsbridge	Automatic	97%	97%	81	92	90	72[d]	71	80	66	68.9
KC4	Kings Road Chelsea	Automatic	98%	98%	91	92/ 93	84	76[d]	73	78	63	84.6
KC5	Earls Court	Automatic	99%	99%	100/ 101	101	95	93	91	86	78	69.3
KC31	Ladbroke Grove/ Nth Ken Library	Diffusion tube (DT)	100%	100%	52.9	52.6	60.9	53.5	49.26	55.50	53.60	60.6
KC32	Holland Park	Diffusion tube (DT)	92%	92%	29.0	29.1	34.0	29.2	27.49	29.87	32.27	n/a
KC33	Cromwell Road/ Earls Court Rd	Diffusion tube (DT)	100%	100%	83.6	84.2	106.3	98.2	84.45	104.50	108.90	82.4
KC34	Dovehouse Street	Diffusion tube (DT)	100%	100%	42.6	42.4	50.3	45.1	40.76	43.70	44.87	43.9 (C10M &20M)

Site ID	Location	Site type	Valid data capture for monitoring period % [a]	Valid data capture 2017 % [b]	Annual Mean Concentration (µg m^{-3})							2017 Distance corrected
					2011 [c]	2012 [c]	2013 [c]	2014 [c]	2015 [c]	2016 [c]	2017 [c]	
KC35	Brompton Road/Cottage Place	Diffusion tube (DT)	*50%*	*50%*	**71.8**	**81.3**	**90.9**	**82.4**	**75.68**	**80.67**	**73.48**	**69.0**
KC38	Earls Court Station	Diffusion tube (DT)	*92%*	*92%*	**95.3**	**100.7**	**108.8**	**100.7**	**99.01**	**101.03**	**122.31**	**133.0**
KC39	Lots Road/Upcerne Road	Diffusion tube (DT)	*100%*	*100%*	33.4	34.0	37.1	34.5	32.51	38.53	35.65	34.4 (c20m)
KC40	Brompton Road	Diffusion tube (DT)	*17%*	*17%*	**49.9**	**49.1**	**52.9**	**44.1**	**41.56**	**45.14**	Insufficient data capture to report	
KC41	Ladbroke Crescent	Diffusion tube (DT)	*92%*	*92%*	35.5	34.8	**41.7**	36.7	34.60	38.16	38.67	n/a
KC42	Pembridge Square Library	Diffusion tube (DT)	*100%*	*100%*	**43.5**	**43.8**	**50.9**	**42.4**	**41.16**	**46.19**	**46.61**	45.4
KC43	St Marks Grove	Diffusion tube (DT)	100%	100%	34.8	36.5	**47.1**	38.7	34.22	36.18	37.50	n/a
KC44	Donne Place	Diffusion tube (DT)	100%	100%	39.9	**42.1**	**47.0**	**40.0**	39.60	**46.13**	**42.03**	N/A
KC45	Chatsworth Court	Diffusion tube (DT)	100%	100%	**51.7**	**50.5**	**57.9**	**53.5**	**48.58**	**52.61**	**51.62**	46.2(C10M &20M)
KC47	Sion Manning School	Diffusion tube (DT)	*97%*	*97%*	32.3	33.8	36.7	32.9	27.45	34.21	34.19	n/a
KC48	Sloane Square	Diffusion tube (DT)	100%	*100%*	**82.4**	**80.8**	**86.6**	**73.9**	**63.03**	**72.33**	**73.71**	**71.9**

Site ID	Location	Site type	Valid data capture for monitoring period % [a]	Valid data capture 2017 % [b]	Annual Mean Concentration (µg m^{-3})							2017 Distance corrected
					2011 [c]	2012 [c]	2013 [c]	2014 [c]	2015 [c]	2016 [c]	2017 [c]	
KC49	Harrods	Diffusion tube (DT)	17%	_17%_	**70.6**	**80.0**	**94.0**	**74.5**	**69.70**	**87.5**	Insufficient data capture to report	n/a
KC50	Chelsea Physic Garden (Gate)	Diffusion tube (DT)	92%	92%	**56.4**	**58.5**	**62.9**	**59.4**	**48.19**	**56.4**	**54.03**	51.6
KC51	Chelsea Physic Garden (Met Station)	Diffusion tube (DT)	100%	100%	33.2	33.5	36.6	33.3	31.58	36.18	**40.48**	n/a
KC52	Sloane Ave. nr Marlborough school	Diffusion tube (DT)	100%	100%	**51.5**	**56.5**	**65.3**	**58.4**	**52.89**	**64.5**	**57.57**	53.6
KC53	Walmer House	Diffusion tube (DT)	100%	100%	**46.3**	**48.5**	**53.6**	**48.4**	**42.60**	**47.0**	**50.27**	n/a
KC54	Cromwell Rd/ Natural History Museum	Diffusion tube (DT)	_89%_	89%	**73.2**	**73.4**	**80.6**	**73.7**	**62.94**	**72.5**	**72.71**	**72.1**
KC55	Blantyre St	Diffusion tube (DT)	100%	100%	**40.6**	**41.7**	**48.8**	**44.1**	35.45	**49.02**	**49.30**	n/a
KC56	Chelsea Old Town Hall	Diffusion tube (DT)	100%	100%	**84.3**	**87.1**	**88.2**	**74.4**	**63.65**	**72.70**	**69.72**	**98.9**
KC57	Pavilion St/Sloane Ave	Diffusion tube (DT)	92%	92%	**52.5**	**53.5**	**59.0**	**54.4**	**43.62**	**56.22**	**58.66**	55.3
KC58	Kensington H St/ Kensington Church St	Diffusion tube (DT)	92%	92%	**58.1**	**62.4**	**75.0**	**58.9**	**50.94**	**59.73**	**64.35**	**97.9** (C10M)
KC59	Kensington H St/Argyll St	Diffusion tube (DT)	100%	100%	**83.0**	**83.4**	**86.9**	**74.9**	**70.31**	**78.97**	**76.88**	**73.9**
KC60	Old Brompton Rd/Draycott Ave	Diffusion tube (DT)	92%	92%	**69.3**	**68.6**	**75.1**	**69.9**	**61.22**	**73.1**	**73.17**	54.8

Site ID	Location	Site type	Valid data capture for monitoring period % [a]	Valid data capture 2017 % [b]	Annual Mean Concentration (µg m^{-3})							
					2011 [c]	2012 [c]	2013 [c]	2014 [c]	2015 [c]	2016 [c]	2017 [c]	2017 Distance corrected
KC61	Fulham Rd/Limerston St	Diffusion tube (DT)	100%	100%	**<u>60.5</u>**	**54.9**	**<u>64.7</u>**	**54.6**	**51.54**	**<u>61.0</u>**	**53.62**	**45.1** (C20M)
KC64	Warwick Rd	Diffusion tube (DT)	100%	100%	**49.0**	**49.6**	**55.5**	**54.8**	**50.55**	**58.3**	**47.70**	**43.0**
KC65	Barlby Road*	Diffusion tube (DT)	100%	100%	38.8	38.0	**47.2**	40.5	33.08	**41.3**	**41.92**	n/a
KC66	Acklam Road*	Diffusion tube (DT)	83%	83%	**43.5**	39.9	**45.4**	**44.2**	34.43	**55.8**	**47.38**	n/a
KC67	Southern Row*	Diffusion tube (DT)	100%	100%	**43.8**	**42.3**	**48.7**	**44.2**	36.21	**45.1**	**47.21**	n/a
KC68	Exhibition Road	Diffusion tube (DT)	100%	100%	**<u>60.6</u>**	**48.0**	**58.3**	**52.9**	**44.64**	*51.0*	**53.20**	**50.7**
KC69	Darfield Way	Diffusion tube (DT)	83%	83%	<u>n/a</u>	n/a	n/a	**48.7**	39.34	**46.1**	**48.37**	n/a

Notes: Exceedance of the NO$_2$ annual mean AQO of 40 µg m^{-3} are shown in **bold**.

 NO2 annual means in excess of 60 µg m-3, indicating a potential exceedance of the NO2 hourly mean AQS objective are shown in bold and underlined.

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

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

 c Means should be "annualised" in accordance with LLAQM Technical Guidance, if valid data capture is less than 75%

 KC47 and KC54 are the mean results of triplicate exposure. Additionally KC47, KC49, KC54 and KC56 are all co-located with continuous analysers.

 C10M monitor more than 10m further from kerb than receptor

 C20M receptor is more than 20m further from kerb than monitor

The Royal Borough of Kensington and Chelsea is a member of the London Wide Environment Programme (LWEP). Fully ratified data became available for all of the monitoring sites included in the LWEP October 2018, and the final report was then published. RBKC has subsequently revised its ASR to refect the final LWEP.

Overview

All continuous monitoring stations have experienced a weak downward trend in the annual mean nitrogen dioxide concentrations from 2012 through to 2017 although the magnitude of decrease has increased for 2017, specifically at our road side monitoring stations KC3, Knightsbridge and KC4 Kings Road Chelsea. Our Urban Background site KC1 North Kensington although has measured a reduction the magnitude is limited.

A majority of the diffusion tube network has not experienced a discernable trend in nitrogen dioxide concentrations from 2011 through to 2017. The majority of 2017 readings were similar in 2016 although a notable increases were measured at roadside KC38 Earls Court Station, KC58 Kensington High Street/Church Street and background KC51 Chelse Physic Garden (Met Office), and notable decreases at roadside KC35 Brompton Road/Cottage Palce and KC52 Sloan Sq and railway KC66 Acklam Road.

Table E. NO$_2$ Automatic Monitor Results: Comparison with 1-hour Mean Objective

Site ID	Valid data capture for monitoring period % [a]	Valid data capture 2017 % [b]	Number of Hourly Means > 200 µg m^{-3}						
			2011 [c]	2012 [c]	2013 [c]	2014 [c]	2015 [c]	2016 [c]	2017 [c]
KC1	*100%*	*100%*	0	1	0	0	0	0	1
KC2	98%	98%	1	4	2	0	*0 (119.7)*	*1*	0
KC3	*97%*	*97%*	**181**	**500**	**466**	*109*	97	**262**	92
KC4	*98%*	*98%*	**76**	**74**	**47**	*5*	9	**54**	4
KC5	*99%*	*99%*	**386**	**323**	**140**	*212*	**135**	**120**	**24**

Notes: Exceedance of the NO$_2$ short term AQO of 200 µg m^{-3} over the permitted 18 days per year are shown in **bold**.
[a] data capture for the monitoring period, in cases where monitoring was only carried out for part of the year
[b] data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%)
[c] Means should be "annualised" in accordance with LLAQM Technical Guidance, if valid data capture is less than 75%

Overview

The number of 1 hour mean exceedances for NO2 has declined for our monitoring stations KC3 Knightsbridge, KC4 Kings Road Chelsea, and KC5 Earls Court from 2011 through to 2017. A distinctive decline has been observed in 2017, although similar low numbers were recorded at KC3 and KC4 in 2014 and 2015 before significant increases were measured in 2016.

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

Site ID	Valid data capture for monitoring period % [a]	Valid data capture 2017 % [b]	Annual Mean Concentration (µg m^{-3})						
			2011 [c]	2012 [c]	2013 [c]	2014 [c]	2015 [c]	2016 [c]	2017 [c]
KC1 FDMS	86%	86%	24	20	23	23	20	20	17
KC2 VCM/FDMS FROM 2010	96%	96%	27	27	26	25	23	22	20
KC5 PARTISOL	73%	73%	33	34	34	31	27	28	27 [c]

Notes: Exceedance of the PM$_{10}$ annual mean AQO of 40 µg m^{-3} are shown in **bold**.

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

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

[c] Means should be "annualised" in accordance with LLAQM Technical Guidance, if valid data capture is less than 75%

Overview

PM10 appears to show a small reduction from concentrations in 2017, as part of an overall very gradual overall slight reduction in PM10 over the last 7 years.

Table G. PM$_{10}$ Automatic Monitor Results: Comparison with 24-Hour Mean Objective

Site ID	Valid data capture for monitoring period % [a]	Valid data capture 2017 % [b]	Number of Daily Means > 50 µg m^{-3}						
			2011 [c]	2012 [c]	2013 [c]	2014 [c]	2015 [c]	2016 [c]	2017 [c]
KC1 FDMS	86%	86%	17	12	9	10 (36.7)	7	10	16
KC2 VCM/FDMS FROM 2010	96%	96%	8 (42.1)	13	12	11 (39.1)	4	8	6

Site ID	Valid data capture for monitoring period % [a]	Valid data capture 2017 % [b]	Number of Daily Means > 50 µg m^{-3}						
			2011 [c]	2012 [c]	2013 [c]	2014 [c]	2015 [c]	2016 [c]	2017 [c]
KC5 PARTISOL	73%	73%	42	43	39	25	15	19	18

Notes: Exceedance of the PM$_{10}$ short term AQO of 50 µg m^{-3} over the permitted 35 days per year or where the 90.4th percentile exceeds 50 µg m^{-3} are shown in **bold**.

Where the period of valid data is less than 85% of a full year, the 90.4th percentile is shown in brackets after the number of exceedances

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

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

[c] Means should be "annualised" in accordance with LLAQM Technical Guidance, if valid data capture is less than 75%

KC1 PM10 monitoring using TEOM ended in 2017.

Table H. **Annual Mean PM$_{2.5}$ Automatic Monitoring Results (µg m^{-3})**

Site ID	Valid data capture for monitoring period % [a]	Valid data capture 2017 % [b]	Annual Mean Concentration (µg m^{-3})						
			2011 [c]	2012 [c]	2013 [c]	2014 [c]	2015 [c]	2016 [c]	2017 [c]
KC1 FDMS	90%	90%	16.4	14.5	14.7	15.9	10.9	12.1	12
KC2 FDMS	72%	72%	16.6	14.8	15.8	N/A	14.7	17.4	17 [c]

Notes: Exceedance of the PM$_{2.5}$ annual mean AQO of 25 µg m^{-3} are shown in **bold**.

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

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

[c] Means should be "annualised" in accordance with LLAQM Technical Guidance, if valid data capture is less than 75%

Overview

The results do not show a clear trend for the last 7 years, concentrations are similar to 2016 and are higher in 2016 and 2017 than in 2015.

Table I.   SO$_2$ Automatic Monitor Results: Comparison with Objectives

Site ID	Valid data capture for monitoring period % [a]	Valid data capture 2017 % [b]	Number of: [c]		
			15-minute means > 266 µg m^{-3}	1-hour mean > 350 µg m^{-3}	24-hour mean > 125 µg m^{-3}
KC1	90%	90%	0	0	0

Notes: Exceedances of the SO$_2$ AQOs are shown in **bold** (15-min mean = 35 allowed a year, 1-hour mean = 24 allowed a year, 24-hour mean = 3 allowed / year)

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

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

[c] Means should be "annualised" in accordance with LLAQM Technical Guidance, if valid data capture is less than 75%

Table J   Benzene Annual Average Levels Using Diffusion Samplers (µg/m3)

Year	KC01 Ladbroke Grove/Nth Ken Library	KC02 Holland Park	KC03 Warwick Rd Petrol St. (forecourt)	KC04 Dovehouse St	KC05 Pembridge Square Library	KC0X Old Brompton Rd/ Clareville Grove Petrol St
2000	5.1	3.1	11.4	2.6	4.2	-
2001	4.3	2.0	11.0	3.7	2.9	-
2002	4.9	1.8	12.5	2.1	2.6	-
2003	3.9	2.4	9.6	2.5	2.9	-
2004	2.1	1.2	9.5	1.4	1.6	-
2005	2.0	1.3	9.2	1.4	1.8	-
2006	2.3	1.9	9.2	1.7	2.0	5.7
2007	2.2	1.6	Closed	1.5	1.7	3.2
2008	2.3	1.6	-	1.6	2.0	2.8

2009	2.1	1.6	-	1.7	1.8	2.6
2010	1.6	1.0	-	1.2	1.6	1.7
2011	1.4	1.3	-	1.4	1.9	2.8
2012	1.2	1.1	-	1.0	1.1	1.6
2013	1.0	0.7	-	0.7	0.9	1.2
2014	0.9	0.7	-	0.7	0.8	1.3
2015	1.25	0.78	-	1.0	0.94	1.8
2016	1.18	0.87	-	0.89	0.92	*6.75*
2017	0.57	0.56	-	0.55	0.61	*0.73*

Monitoring Data Summary:

We currently undertake benzene sampling at five locations using diffusion tubes, these include two roadside, two background, and one site in close proximity to a petrol station forecourt. The petrol station has operated stage two (in addition to stage one) vapour recovery since 2007.

Two objectives have been set for the assessment of benzene, a running annual mean of 16.25µg/m^3 (any exceedances shown in bold) to be met by 31.12.2003 and a more stringent annual mean of 5µg/m^3 (any exceedances shown in italics) to be achieved by 31.12.2010.

The highest levels of benzene have generally been recorded at the petrol station sites. The table above shows the 2010 objective has been met at all sites since 2007; the 2003 (16.25µg/m^3) objective has been met since 2000 (the measured annual mean is assumed to be the equivalent of the running annual mean).

After an initial steep decline, all sites (apart from the petrol station site) have generally shown a much more gradual reduction. Whilst little change was observed between 2013 and 2014, results for 2015 show a slight increase between 2014 and 2015 across all sites has occurred. In 2016 a high reading was recorded at KC0X, the results for 2017, show this was an unusually high result and levels show a reduction from the 2016 monitored results.

Please note the BTEX Tube KC04 had to be slightly moved by ~20m due to demolition of a building.

2. Action to Improve Air Quality

2.1 Air Quality Action Plan Progress

Table K provides a brief summary of The Royal Borough of Kensington and Chelsea progress against the Air Quality Action Plan, showing progress made this year.

Table K. Delivery of Air Quality Action Measures

Measure	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints	Further information
1.Support vulnerable hospital discharge patients with heart and lung conditions	Provide air quality advice and home modifications to discharged hospital patients, particularly those most vulnerable (i.e. children/elderly) with heart and lung diseases.	Under the new Bi-borough restructure a Public Health Business Partners model has been launched. One of these PHBP will partner with the NHS to deliver Public Health's joint collaborative priorities which include Air Quality so further work with vulnerable patients is anticipated through this mechanism.	
2. Support and promote air quality awareness programmes	Support and promote the schemes Breathe London, Airtext and Walkit to include CityAir/LondonAir and 'Breathe Better Together' principles to provide more information to a wider audience of subscribers.	Public Health continue to fund the airText service in RBKC. There are currently 200 text subscribers in RBKC, and 50 voice alert subscribers in RBKC. There were 42 new subscribers to the service since January 2017.	
3 Support school and community	Carry out air quality campaign through the 'Healthy School Partnership' at primary schools and	Kick It have a youth prevention arm called CTRL-Z. They have been working in Latimer AP school in conjunction with the Young People Substance Misuse service Insight.	

Measure	Action	Progress	Further information
		• Emissions/Concentration data • Benefits • Negative impacts / Complaints	
campaigns to reduce smoking at home	'Thrive Tribe' in the community to reduce domestic smoking at home.	They also have worked in the Lycee French school, St Charles Sixth form, Harrow and Golborne youth clubs. In the coming year they will be attending the Healthy Schools Partnership meeting, Primary School Network Meeting and Secondary Schools Network meeting.	
4 Support initiatives to improve outdoor air quality	Identify local needs including smoke free areas and air pollution abatement through 'Healthy Parks/Playgrounds' initiative.	Not started – have an upcoming workshop with Parks/ Ecology to discuss joint work programmes moving forward and will discuss this action.	
5 Produce policy guidance on the use of e-cigarettes in the workplace	Develop policy guidance for commercial premises on the use of e-cigarettes in the workplace to improve indoor air quality.	(No local pollution benefit) Constantly review and update according to the emerging evidence base.	
6 Promote initiatives to reduce smoking at home	Ensure 'Smoke Free Homes' is promoted through the NHS 'Stop Smoking Service'.	(No local pollution benefit) Stop Smoking Service providers 'Kick It' have been running a smoke free homes campaign since September 2016 and this is ongoing. The intervention includes, smoke free pledges, distributing PHE smoke free packs and engagement with London Fire Brigade for home safety and training. The uptake has improved in RBKC in 2017/18 with 259 people who have cut their smoking by	

Measure	Action	Progress	Further information
		• Emissions/Concentration data • Benefits • Negative impacts / Complaints	
		50% or more, they have received over 254 signed Smokefree home pledges and were issued PHE packs and 15 people have been referred to the London Fire Brigade.	
7 Encourage cycling as a non-polluting mode of transport and to combat obesity	Promote cycling through GPs, 'GP Navigator', 'Health Trainer' and 'Cycle Coordinator' schemes to improve heart/respiratory health, combat obesity and promote non-polluting transport modes.	As part the GoGolborne obesity pilot, a Pedal and Stride Campaign has been launched focusing promoting active travel in partnership with the Sustainable Travel Team.This mini-campaign is providing an extra push on all of the Sustainable Travel team's services in Golborne. Activities include;: 1. working with all organisations to develop a travel plan, 2. running training for Walking Leaders, 3. worked with schools to put on special activities for 'Walk to School Week', 4. provide grants to local organisations to deliver walking and cycling projects e.g. secure bike sheds, bikes for disabled children, 5. developed walking maps of the local area, and 6. commissioned Living Streets to undertake a street audit and then working with local residents to implement recommendations and make the area more walkable.	

Measure	Action	Progress	Further information
		• Emissions/Concentration data • Benefits • Negative impacts / Complaints	
8 Support financial saving schemes that aid residents living in fuel poverty	Support the delivery of the Big Energy Switch 2015, a collective energy switching scheme to help residents negotiate tariffs on gas and electricity and to aid residents living in fuel poverty in line with the 'Healthier Homes' scheme.	The borough has been involved with the Big London Energy Switch for a number of auctions and will continue to promote tariff switching as a way of cutting bills and reducing fuel poverty. This is promoted through our website and press releases. The borough also undertakes a number of different measures to ensure that those residents who do not have access to online switching can still receive assistance. Healthier Homes attends a number of events throughout the year including the annual Health Fair, Community Champions and Carer's events. Healthier Homes will visit individuals in their homes to assist with switching and tariff advice. Healthier Homes also supports and promotes the Winter Fuel Fund administered by the Kensington & Chelsea Foundation. This collects donated winter fuel payments and additional charitable donations and distributes them to older residents who have received very high fuel bills. We have also funded a post based in our local Citizens Advice to provide specific advice and specialist support for fuel debt and this includes switching and tariff advice and the promotion of the warm homes discount. Healthier Homes also promotes the Warm Homes	

Measure	Action	Progress	Further information
		- Emissions/Concentration data - Benefits - Negative impacts / Complaints	
		Discount through leaflets and during events and visits. Healthier Homes undertakes home visits and will assist residents on an individual basis to identify the best tariffs for their circumstances and help them to switch. When we are able to work with the Green Doctors they will also undertake switching and tariff advice during their home visits.	
9 Discourage burning of logs and house coal	Launch an initial publicity drive backed up by yearly campaigns in the autumn to highlight pollution caused by burning non-smokeless fuels in household fireplaces backed up with enforcement for persistent offenders.	The Council continues to provide advice with regard to smoke control area. The Council website provides information about wood burning in the borough and is regularly updated when required	
10 Support vulnerable residents to reduce energy consumption and bills	Support residents by providing energy efficiency advice and by installing small and low cost energy efficiency measures to combat climate change. Reduce their energy bills and carbon footprint, through the Healthy Homes project and through home energy visits by trained green experts.	The Healthier Homes project is a local referral based project run by the council in partnership with the third sector aimed at reducing fuel poverty amongst local residents. The project helps residents through a mixture of measures. Advice and information is provided though the website, leaflets and posters. We also provide bespoke and open training sessions for council, health and third sector groups to help them identify and make	

Measure	Action	Progress	Further information
		- Emissions/Concentration data - Benefits - Negative impacts / Complaints	
		appropriate referrals. Healthier homes visits residents in their properties to assess the most appropriate course of action, this may be through advice and small measures, or grants or enforcement. Where Healthier Homes cannot help directly it makes referrals on to other more appropriate organisations. These include local third sector organisations, other council departments and the Green Doctors for energy efficiency and in particular the installation of small measures notably draught proofing. In the financial year 2017-2018 the project received 87 referrals and made over 60 home visits. 19 referrals for heating installations, repairs or servicing were made. A further 4 referrals were made for other grant aided works. Between January 2017 and March 2018, more than 200 home energy visits were delivered by the Green Doctors to RBKC residents, vulnerable to the effects of living in cold housing, identified as being elderly, on benefits, with multiple health issues and/or disadvantaged. The visits were mainly delivered in the Council's owned social housing estates, and low energy efficiency measures (such as draught proofing, energy efficient light bulbs, radiator panels, TV power downs, shower	

Measure	Action	Progress	Further information
		• Emissions/Concentration data • Benefits • Negative impacts / Complaints	
		heads etc.) were installed and winter warm packs were provided. Many of these visits were funded through the WARMTH programme.	
11 Promote case studies of higher-standard insulation and heating systems for existing buildings in the borough	Promote exemplar case studies about sustainable retrofit and regeneration schemes within the borough that have improved insulation and heating systems and which have exceeded the minimum standards set out in Building Regulations.	Case studies on exemplar buildings (e.g. schools) across RBKC which achieved higher environmental standards (such as BREEAM excellent and/or very good) will be published on the website in 2018 and will be promoted through media campaigns.	
12 Improve the energy efficiency of the six main Council's buildings	Deliver energy efficiency projects in six of the Council's main facilities (Town Hall, Chelsea Old Town Hall, Pembroke Road, Carlyle building, Violet Melchett and Pembroke road car park).	There have been 619 tons of CO2 savings from the energy delivered up to April 2018. Further 50 tons of CO2 related projects have been identified for 2018/2019 (pending approval)	
13 Improve the use of space in council	Improve the use of Council buildings making them more sustainable, flexible and cost- and	The Grenfell tragedy has had a significant impact on the Councils plans to rationalise its operational footprint and reduce energy consumption. 2 new operational buildings	

Measure	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints	Further information
buildings to increase occupancy and reduce overall energy demand	space-efficient, so that the remaining sites are more energy efficient. This includes the closure of unsuitable and energy inefficient Council sites (e.g. Pembroke Road).	have had to be acquired to provide essential Grenfell Recovery related services and a significant influx of new staff at KTH will also provide for an increase in energy usage. Similarly, Council Offices at 37 Pembroke Road are no longer planned for redevelopment and will now be refurbished so that they may continue to provide council office accommodation. Canalside House relocation is now no longer taking place and there is also a commitment to accommodate c150 former Tenant Management Organisation staff in the Councils operational estate by 2020.	
14 New Marlborough primary school to be performing at a high standard of energy efficiency	Reduce energy consumption in the redeveloped Marlborough school complex.	School was constructed with a BREEAM 'Very Good' rating. The climate change team is part of the project team ensuring sustainability and energy efficiency is considered at all stages of the project. The school was completed in August 2017, and is now in use.	
15 Continue to insulate the heating systems in schools	Deliver and support Flange & Valve insulation projects to a large number of schools.	Since 2014, 21 RBKC schools (out of the 36 schools included in the carbon scope/portfolio) benefited from boiler insulation work (flange and valve) improvement projects. These works are expected to save around 111.18 tonnes	

Measure	Action	Progress	Further information
		• Emissions/Concentration data • Benefits • Negative impacts / Complaints	
		of CO_2 per year. This is an ongoing initiative. The following schools were identified in 2017 /18 as potential sites for doing plant room insulation (insulating the boiler pipes): St Joseph's RC Primary School, St Mary Abbots CE Primary School, St Barnabas & St Phillips CE Primary School, Fox Primary School and Barlby Primary School. However, out of these schools only two schools were found lacking F&V insulations such as: St Joseph's Catholic Primary School and St Mary Abbots CE Primary School. These projects will be schedule for completion. The F&V works can reduce the amount of heat being wasted through exposed flanges, valves and pipework.	
16 Make sure that boilers in schools are set up and controlled to better adapt heating to each school's needs	Make sure that boilers in schools are set up and controlled to better adapt heating to each school's needs	One school (Avondale School) have had heating controls work done in 2017 as a result/recommendation of the heating health checks. The heating health check project delivered at Avondale School is expected to reduce approximately 1.94 tonnes of CO_2 annually. This is an ongoing project.	

Measure	Action	Progress	Further information
		- Emissions/Concentration data - Benefits - Negative impacts / Complaints	
17 Continue to install LED energy-efficient lighting in schools	Deliver lighting projects within selected schools to increase the use of LEDs and energy saving fittings.	The LEDs project is an ongoing initiative delivered by the Climate Change Team in partnership with RBKC schools. In 2018, a Schools Energy Programme working group was set up by the Corporate Property colleagues and also includes representatives from the Climate Change Team and Children Services. An energy efficient work programme is currently being drafted. During 2017/18, the Council installed LED lighting systems in four RBKC schools. This work is estimated to save 30.07 tonnes of CO_2 per year. Oratory RC Primary School: This work is estimated to save 2.7 tonnes of CO_2 per year. St Barnabas & St Phillips School: This work is estimated to save 11.26 tonnes of CO_2 per year. St Mary Abbots Primary School: This work is estimated to save 4.16 tonnes of CO_2 per year. St Francis of Assisi Catholic Primary School: This work is estimated to save 11.95 tonnes of CO_2 per year. Since 2014, the Council installed LEDs into 13 RBKC schools. These projects are estimated to bring a total	

Measure	Action	Progress	Further information
		• Emissions/Concentration data • Benefits • Negative impacts / Complaints	
		reduction of 138.15 tonnes of CO2 per year. The Council will continue to work with the schools in the Borough and will assist other schools to convert to LEDs.	
18 Introduce more energy efficient street lighting	Introduce more energy-efficient street lighting	Difference between 2016/17 to 2017/18 the reduction was 814 Tonnes CO2 Emission Factor 0.38146 Nitrogen Dioxide reduction is estimated at 598.5 tonnes	
19 Produce an energy strategy for council housing	Complete the council housing energy strategy to guarantee energy efficiency and more resilient buildings in the Council's housing stock and reduce fuel poverty.	A new stock condition survey has been commissioned and will report in Autumn 2018 leading to a review of the energy strategy.	
20 Develop planned programme of communal boiler upgrades and renewals within council housing	Complete the review of communal boilers from council housing and develop a planned programme of replacements and upgrade works. When possible, install individual controlled heating within flats.	Feasibility studies are being undertaken of 47 sites for communal boiler replacement/refurbishment over the next 5 to 10 years.	
21 Install ultra-low-nitrogen	Install ultra-low pollution boilers in next phase of boiler replacement in	There have been 99 boiler renews carried out this year.	

Measure	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints	Further information
oxide (NOX) boilers in council housing	social and council housing (Further phase planned for 2019-20).		
22 Incorporate energy efficiency improvements into the Council's planned social housing renewal programme	Incorporate energy efficiency improvements into the planned renewal programme, for example: upgrade windows from single glazed to double glazed and improve the insulation standard for TMO properties when renewing roofs.	Due to other priorities in services and a change to the management structure, no action has been taken or reported this year.	
23 Complete energy efficiency refurbishment for the Council's housing estates	Incorporate energy efficiency intothe planned refurbishment workprogramme of the Council'shousing estates.	Due to other priorities in services and a change to the management structure, no action has been taken or reported this year.	
24 Raise awareness on air quality and climate change	Raise awareness of air quality and climate change issues, by advising council tenants on efficient use of heating systems using specific	Due to other priorities in services and a change to the management structure, no action has been taken or reported this year.	

Measure	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints	Further information
issues amongst council tenants.	guidelines.		
25 Explore the opportunity to install renewable energy technologies in the council's social housing (e.g. solar panels)	Through additional or external fundings. Renewables will be considered and explored but insulation and energy efficiency will be a higher priority. It will be undertaken when it is a practical and affordable solution.	The Council has identified a pilot location for implementing energy efficiency improvements at Nursery Lane (35 Flats) The Council has commissioned Parity Projects in 2017 to deliver a CHROM analysis for the Council's social housing stock. The main aim was to analyse the energy performance of several social housing properties owned by the Council and to identify a range of energy efficiency measures and opportunities to reduce CO2 emissions from the Council's stock. The report will be used to inform our work programme.	The Council is working in partnership with Repowering London to develop a community owned energy project in the north of the borough (in a deprived area). Some of the initial sites assessed were Council's social housing estates; however, due to the Governmental Feed-In-Tariffs cuts and the low usage on site for the social housing estates, the project will focus in the first round on schools and community centres (e.g. Dalgarno community centre).
26 Implement the forthcoming legislation related to CO2 emissions for new	Support implementation of the government's Housing Standards Review with regard to energy standards through emerging alterations to the London Plan, revisions to the Local Plan, determination of planning	As per 2016. The Local Plan Partial Review (LPPR) is currently at examination with hearings held in February and March 2018. Once the Inspector's report is received (expected in summer 2018), the Council will be in a position to adopt this policy.	

Measure	Action	Progress	Further information
		• Emissions/Concentration data • Benefits • Negative impacts / Complaints	
developments and major refurbishments	applications and through building regulations.		
27 Ensure that major building sites minimise dust and emissions including those from on-site mechanical plant	Apply the new London Plan – The Control of Dust and Emissions During Construction and Demolition Supplementary Planning Guidance and require low-emission NRMM with appropriate Euro standards on major redevelopment sites.	The planning policy and Supplementary Planning Document (SPD) on basements continue to be effective tools in mitigating impacts. In addition, the planning enforcement team has started a proactive Chelsea Pilot to monitor if construction is compliant with Planning, Environmental Health and Highways policies and legislation. If the Chelsea Pilot is successful the pro-active, collaborative monitoring is likely to be rolled out across the borough in some form. We are responding to complaints re dust nuisance. Planning enforcement are not monitoring the NRMM register for the time being. London Low Emission Construction Partnership • NRMM (non road mobile machinery) PEMS (portable emission measurement system) work still ongoing, further testing has been undertaken that included excavators, dumpers, cranes, and a concrete pump (work in calibration with MACE and Battersea Power Station) • Kings College ERG are comparing emissions of generators against generator load to provide information and provide best practice guidance when	

Measure	Action	Progress	Further information
		• Emissions/Concentration data • Benefits • Negative impacts / Complaints	
		specifying generators • Kings College ERG are working with HS2 to look at a low emission proposal for works areas (proposing generators with DPF fitted to drastically reduce emissions) currently progressing through their internal innovation board hopefully looking for approval. PEMS testing will be completed should approval be achieved. • Currently working on a guidance document and seminar for LA and industry	
28 Ensure that the planning system minimises impact of new development during operation	Utilise the planning application process to assess the implementation of energy strategies in major developments and make air quality and climate change recommendations.	In 2017, 141 planning application were reviewed for air quality impacts and this review would have included developments with energy strategies. A total 13 developments had emission limits recommend for CHP plants and 17 developments were recommended to install low NOx boilers. The Local Plan Partial Review (LPPR) is currently at examination with hearings held in February and March 2018. Once the Inspector's report is received (expected in summer 2018), the Council will be in a position to adopt this policy. Policy CE5 has not been substantially changed, just updated to make it more clear. The reasoned justification accompanying the policy has also been strengthened. The Local Plan Partial Review Policy CE5 continues to	The Local Plan Partial Review may be found here: www.rbkc.gov.uk/planningpolicy

Measure	Action	Progress	Further information
		• Emissions/Concentration data • Benefits • Negative impacts / Complaints	
		requires all major developments to submit and air quality assessment that will include impacts form their energy strategies. Local Plan policy Partial Review Policy Continues to resist biomass combustion and combined heat and power technologies/CCHP which may lead to an increase of emissions and seek to use greater energy efficiency and non-combustion renewable technologies to make carbon savings unless its use will not have a detrimental impact on air quality. The Local Plan Partial Review proposed Policy CE1 refers to the London Plan which requires 'zero carbon' homes for major residential development. In relation to this the Planning Department together with the Climate Change team has set up a carbon offset fund. Developments that cannot meet zero carbon on-site are expected to make a financial contribution to offset the remaining carbon. The Climate Change team has identified projects where this money could be spent. Policy CE1 also requires BREEAM very good to be achieved for non-residential development of 1,000sq m or more.	
29 Use the	Make informed decisions on	The Local Plan Partial Review (LPPR) is currently at	The Local Plan Partial Review may be

Measure	Action	Progress	Further information
		• Emissions/Concentration data • Benefits • Negative impacts / Complaints	
planning system to ensure that emissions from energy and heat sources in new developments are minimised	planning applications about 'Decentralised Energy' (DE) networks, 'Combined Heating Power (CHP)', biomass and biofuel, by considering the balance between air quality and carbon reduction benefits. Assess and make recommendations.	examination with hearings held in February and March 2018. Once the Inspector's report is received (expected in summer 2018), the Council will be in a position to adopt this policy. Policy CE5 has not been changed, just updated to make it more clear. The reasoned justification accompanying the policy has also been strengthened. Specific sites policy previously highlighted areas where CHP could be utilised in developments in regeneration areas to achieve reductions in CO2 emissions. These references have now been removed to make a more balanced decision of the sites suitability for the use of CHP due to air quality impacts and if carbon saving targets can be met using different methods with a lesser impact to local air quality.	found here: www.rbkc.gov.uk/planningpolicy
30 Improve walking and cycling access to White City	Provide new direct pedestrian and cycle routes by means of a bridge and a subway between the White City Opportunity Area and Norland and Notting Barns wards.	No significant progress was made in 2017/18. During the period Imperial College continued their engagement with Network Rail to work up the design and construction plans for the planned Underpass between Latimer Road and White City. Imperial College are currently (April 2018) seeking expressions of interest from building contractors to establish what the build costs might be. The completion of the exercise should give Imperial College the confidence to progress the	

Measure	Action	Progress	Further information
		- Emissions/Concentration data - Benefits - Negative impacts / Complaints	
		scheme. An important outstanding item is the need to agree which organisation would be responsible for the underpass structure into the future. Works are unlikely to commence this financial year. In relation to the planned pedestrian bridge that would link Bard Road to Westfield, in 2018/19 we will seek to secure TfL's support for the scheme by engaging with LUL and their surface transport division (the bridge would be positioned alongside the Hammersmith and City Line viaduct and would pass over the West London Line and the West Cross Route). At present the bridge is unfunded so a business case will need to be made once both landing sites are in a state to accommodate the bridge (early 2020s). Imperial are putting the subway construction works out to tender in early 2018. There has been no progress with the bridge.	
31 Publish online real-time information about the energy used	Publish online real-time information on CO2 emissions from Council's main buildings, as well as energy generated by the Council's solar panels.	The Council is currently displaying its live energy consumption data online via the Carbon Culture platform. Ongoing issues with getting live energy data feeding into the platform were identified in 2017. Two meetings took place in summer 2017 to address these issues, however more work is needed in this area. In	The platform can be found on the Council's website: https://www.rbkc.gov.uk/greenerborough/welcome-to-greener-borough

Measure	Action	Progress	Further information
		• Emissions/Concentration data • Benefits • Negative impacts / Complaints	
and generated by the Council's main buildings		2018 the Council will investigate alternatives ways to display its live energy consumption and carbon emissions on the RBKC website.	
32 Continue to reduce the Council's vehicle emissions	Start with a review of the engine types of all Council vehicles to find opportunities to procure the cleanest Council Fleet.	In 2017 the Energy Saving Trust conducted a review of the vehicles used by the Council (65 leased vehicles), including its Grey Fleet (vehicles privately owned or leased by employees but used for business travel). The review analysed the Council's fleet in terms of energy consumption, emissions and cost. The review also included recommendations on how the Council can adopt a green and low pollution fleet strategy and procure a zero tailpipe emission fleet. A Green Fleet Strategy is currently being developed and will be completed and adopted by October 2018. Eco-driving training for the Council's and contractors' drivers have been organised in 2017/18. The training sessions took place in February and March with the aim to encourage and educate Council and contractor staff in eco/efficiency driving best practice (fuel efficient driving and smart driving training). 48 eco-driving training sessions were delivered for Council and contractor's staff that are using	Energy Saving Trust estimated that if all Council drivers are trained, 6.5 tonnes of CO_2 will be reduced per year and £2,750 will be saved from cutting down fuel consumption per year. The eco-driving training sessionsare expected to bring around 15% -20% improvement in fuel economy per year.

Measure	Action	Progress	Further information
		- Emissions/Concentration data - Benefits - Negative impacts / Complaints	
		conventional petrol/ diesel cars. 22 eco-driving training sessions were delivered for Council and contractor's staff that are using electric vehicles. 8 more eco-driving training sessions were delivered for staff using conventional petrol & diesel cars.	
33 Continue to reduce emissions from our contractor's waste collection and street cleaning vehicles	Work with our contractor SITA to reduce emissions from its fleet.	All new SITA fleet vehicles have Euro 6 engines (no retrofitting of old vehicles will take place). This doesn't impact CO2 but has significant lower NOx and PM10 emissions. In 2017/18, Suez have reduced their CO2 emissions by 33.3% or 429 tonnes of CO2 since 2007/08 (baseline year). The emissions from this area are related to fuel consumption within their fleet and it accounts for 5.75% of the Council's total emissions. Suez (Council contractor) are aiming to make collection routes more efficient where possible. For example, the garden waste service collections have been reduced from three days a week collection to one day per week from April 2017. Other options to make collections routes more efficient are currently being investigated by	

Measure	Action	Progress	Further information
		• Emissions/Concentration data • Benefits • Negative impacts / Complaints	
		Suez. A site visit to Dennis Eagle (suppliers of the Refuse Collection Vehicles) took place to discuss their new electric vehicles and to arrange a pilot when the vehicles come into production in 2019.	
34 Maintain an up-to-date Council Travel Plan	Undertake staff survey and site audits, and revise the travel plan.	Staff survey undertaken in Autumn 2016, next survey due September 2018. 39 new cycle parking spaces and a repair stand and tyre pump provided at Pembroke Road offices in 2017, improvements made to cycle parking and shower areas at Kensington Town Hall.	
35 Increase public awareness of vehicle emission controls	Carry out roadside operations to test vehicle exhaust emissions.	No emissions testing undertaken this year. Awareness raising of emission control was undertaken as part of MAQF Idling Action awareness project through leaflets and action days where businesses and drivers were engaged. Across three action days we had 67 interactions with members of the public plus businesses and schools.	
36 Increase public awareness to reduce engine idling	Reduce idling of engines by raising awareness of public health and environmental benefits in addition to using enforcement powers to issue fines to those who persist.	Work with the GLA to bid for and undertake three air quality audits with schools in the borough most affected by poor air quality. The reports and action plans for each are due back end of March 2018. Many schools have chosen to spend their school grants on greening	

Measure	Action	Progress	Further information
		• Emissions/Concentration data • Benefits • Negative impacts / Complaints	
	Carry out campaigns targeted at the public, fleet managers and council drivers, e.g. including a pamphlet in permit renewal paperwork. Erect temporary signage in target areas.	and other air quality initiatives in 2017-18. We now have a dedicated Contracts and Enforcement Officer, overseeing anti engine idling. They ensure that problem areas are patrolled and that visible signage is installed. The officer also works with Environmental Health and Parking teams, conducting joint work to raise awareness Three vehicle Idling Action Days were completed across the borough, two with schools (Chepstow House School, Notting Hill Preparatory School) and one with the Westway Trust. 47 drivers were approached across the events. 35 of which were idling, 31 of these agreed to switch off their engines.	
37 Encourage residents to choose low emission vehicles by raising diesel surcharge	Increase the diesel surcharge to encourage less polluting vehicle choices. Cease provision of Euro 5 exemption in 2017 once Euro 6 diesels are available.	The surcharge was raised to £40 in 2016 and the exemption for Euro 5 vehicles was removed in April 2017.	
38 Review of effectiveness of parking	Review Parking Policy banding to encourage choice of lower-	This work was postponed due to staff shortage and has now been restarted with a view of implementing	

Measure	Action	Progress	Further information
		• Emissions/Concentration data • Benefits • Negative impacts / Complaints	
permit fee structure in encouraging the uptake of cleaner vehicles	emission vehicles.	changes in April 2019.	
39 Increase number of on-street charging points for electric vehicles	Expand the availability of on-street charging points for electric vehicles.	In late 2017 we began installing an additional 50 lamp column charging points across the borough. For 2018-19 we are looking into introducing some 22kW and 50kW rapid electric vehicle charging points.	
40 Encourage car clubs to go electric	Explore with car club operators the potential for introducing or increasing the number of electric cars or hybrid electric vehicles in their fleets.	We have reviewed our car club parking permit prices to improve the business case for operators to fund their own charging points at car club bays.	
41 Encourage children to walk or cycle to school	Double the number of schools with Silver or Gold accredited School Travel Plans and promote walking and cycling to school as part of a combined effort to tackle childhood obesity. Introduce advice on engine idling in promoting and creating	In 2016-17, 38 schools have accredited travel plans, 15 at gold level, 6 at silver and 17 at bronze level. A further 2 schools started a new travel plan that will be accredited next year. The drop in school travel plans is reflective of a drop London-wide overall. 2017-18 figures will be available from July 2018 (end of school year).	

Measure	Action	Progress	Further information
		• Emissions/Concentration data • Benefits • Negative impacts / Complaints	
	travel plans.		
42 Use cycle training to promote more cycling	Encourage greater use of cycling, by increasing the number of free cycle training sessions for residents, visitors and workers in the borough.	1,091 sessions of cycle training took place with adults and 1,600 sessions took place with children in 2017-18.	
43 Help the Mayor of London to create cycling grid of specially designed routes	Work with the Mayor of London to improve cycle routes in London by introducing the Cycling Grid	All Phase 1 routes and wayfinding were completed in 2017/18 and a new set of 'Phase 2' routes were developed in late spring. Feasibility studies have been undertaken and these are now with TfL for sponsor review.	
44 Open up more one-way streets to cyclists using both directions.	Continue to convert one-way streets to two-way operation for cycling.	We have designed a dozen new two-way cycling schemes and will consult on these in 2018.	
45 Create safe areas for cyclists at	Consider opportunities for introducing Advanced Stop Lines for cyclists when reviewing traffic	Locations for Advanced Stop Lines were identified in 2017/18 and will be delivered in 2018 following the local elections.	

Measure	Action	Progress	Further information
		• Emissions/Concentration data • Benefits • Negative impacts / Complaints	
traffic lights	signals.		
46 Support residents to take action in their local areas and implement community energy projects	Encourage and empower residents to help tackle climate change and reduce energy consumption in their local areas and homes. Stimulate attitude and behaviour change through community energy projects and energy workshops/training.	Healthier Homes (see action 10) has held open training sessions for staff and residents and has also provided training for Age UK volunteers in the borough. The training aims to allow the recipient to identify those at risk of fuel poverty and how to refer. The project has also worked closely with the local Community Champions providing training and materials (such as leaflets, thermometers etc) and attending local community events . Groundwork London have delivered free trainings in energy and money saving for 'frontline workers' or those working in the community through the Big Energy Saving Network (BESN). The aim is to enable frontline workers to provide 'assisted action'. In 2017/18, Groundwork has delivered training at Open Age, Chelsea Theatre and Dalgarno community champions, CAB and Al Manaar. The Council also attended several community events to raise awareness of energy measures, fuel debt advice and resources for those living in fuel poverty – these include having a stall at the Older People's Health Fair and attending three community champions events, a	

Measure	Action	Progress	Further information
		- Emissions/Concentration data - Benefits - Negative impacts / Complaints	
		drop in event at New Horizons and family fun days at Samuel Lewis Trust Dwellings (Ixworth Place) and Wiltshire Close.	
47 Identify and train green champions in the community	Identify and sign up green champions/leaders and residents' groups within the borough to initiate and support the delivery of energy reduction and energy generation projects or provide energy advice to their local community.	Training sessions were carried out by Groundwork London at Dalgarno Trust Centre, Al Manaar Muslim Cultural Heritage Centre, Open Age, New Horizon, CAB, Chelsea Theatre etc. These sessions provided advice on how to save energy and water and also promoted the Council's free Green Doctors home energy and Healthier Homes' schemes.	
48 Understand better the sources and quantities of greenhouse gas emissions across the borough	Analyse the sources and quantities of greenhouse gas emissions across the borough.	The Department for Business, Energy and Industrial Strategy (BEIS) released national data for 2015 carbon dioxide (CO_2) emissions data (the latest data we have), broken down into Local Authority (LA) and by sector. The data was published in July 2017 for the period 2005 – 2015 was analysed and below are the main findings: In 2015, Kensington and Chelsea emitted a total of 1.04Mt CO_2 comprising: • 590kt industry & commercial emissions (56.7%) • 295kt domestic emissions (28.4%) • 155kt road transport emissions (14.9%)	

Measure	Action	Progress	Further information
		• Emissions/Concentration data • Benefits • Negative impacts / Complaints	
		The all-sector CO2 emissions decreased by: • 9.9% (114kt) from 2014 to 2015 • 25% (349kt) from 2005 to 2015 Per capita all-sector CO2 emissions decreased by: • 20.4% (1.7t) since 2005 • 10.7% (0.8t) since 2014 Industry & commercial is the largest carbon emitting sector in the borough, comprising approximately 56.7% of total emissions. Within the industry & commercial sector electricity is by far the highest emitter of carbon, in 2015 contributing 40.7% of total emissions.	
49 Support local businesses and large organisations to reduce emissions from their operations	Offer environmental advice and sources of technical information to local businesses and large organisations on how to reduce their CO2 and air pollution emissions.	The RBKC carbon dioxide emissions data (CO2) published by BEIS in June 2017 for the period between 2005-2015 was analysed. A report was produced to highlight the results and to show the carbon emissions produced by the industry sector. Projects are being assessed.	
50 Work actively with	Increase the number of businesses participating in emission reduction	We are working with the Clean Air Better Business (CABB) project funded by the Mayor's Air Quality Fund	

Measure	Action	Progress	Further information
		• Emissions/Concentration data • Benefits • Negative impacts / Complaints	
some large business organisations to help them to reduce their emissions	initiatives by concentrating on large organisations in line with the Healthy Workplace Charter. Starting with those already approached, but not previously ready to commit.	(MAQF) which is implemented by the Cross River Partnership (CRP) who actively approach and engage with businesses within the borough to improve air quality by: • Making deliveries to businesses more efficient, reducing congestion and air pollution while saving time and money via thedeliverBEST online tool and business support service; • Addressing the air quality impact of online shopping and personal deliveries via the 'Click. Collect. Clean Air' behaviour change campaign; • Communicating air quality messages with the business community. • Delivery and Servicing Plans for businesses to rationalize movements, reduce traffic and congestion and achieve time, cost and emissions savings; • Travel to work plans – to make travel to work more sustainable; • A directory of suppliers using zero and low emission (ZLE) vehicles – to enable businesses to choose to use ZLE vehicles providers/services;	

Measure	Action	Progress	Further information
		• Emissions/Concentration data • Benefits • Negative impacts / Complaints	
		• Promotion of zero and low emission vehicles to businesses, the public sector and the taxi and private hire industries. CABB are promoting deliverBEST directly to businesses in some initial areas including High Street Kensington, Notting Hill and Holland Park Avenue. It was announced this year that Westminster City Council ((Cross River Partnership) with Lambeth, Islington, Kensington & Chelsea, Hammersmith & Fulham, Lewisham) were successful in their application to the Defra Clean Air Fund for funding to work with businesses across 5 boroughs to help reduce their emissions £232,850. In RBKC the funding will be used to focus on two areas in the borough Earl's Court Rd / Warwick Rd – GLA AQ Focus Area 116 (RB Kensington & Chelsea) and Ladbroke Grove/Westway – Borough AQ Focus Area (Kensington & Chelsea)	
51 Encourage visitors to major venues to walk or cycle.	Work with major destination venues in line with the Healthy Workplace Charter to reduce trips using private and public transport by promoting active travel (walking and cycling), using customised maps and adapting existing	As per 2016. The Local Plan Partial Review (LPPR) did not propose changes to policies CK2, CK3 or CT1 which remain in place and relevant to this action. Cleaner air walking Route established between Earls Court and the Design Museum advertised on both TFL and CABB website.	

Measure	Action	Progress	Further information
		• Emissions/Concentration data • Benefits • Negative impacts / Complaints	
	publicity materials.		
52 Support businesses to reduce their emissions from deliveries	Support businesses to combine and rationalise deliveries (of 100 – 400 Kg loads) using low/zero emissions vehicles and local distribution hubs for final stage deliveries.	In October 2017, Cross River Partnership (CRP) was appointed as the business engagement partner for the Low Emission Logistics (LEL) project funded by the Mayor's Air Quality Fund (MAQF) which is being progressed in the borough. The project engages with businesses to address air pollution and congestion stemming from their deliveries and servicing vehicles in the northern end of Exhibition Road. Exhibition Road is home to the Natural History Museum, The Science Museum and the Victoria and Albert Museum as well as Imperial College. Each organisation receives large volumes of deliveries daily; they already share some suppliers and therefore the opportunities for reducing vehicle movement in this area are significant. A bespoke online business engagement survey was undertaken to collect baseline data f on delivery and survey patterns as well as identifying existing good practice by businesses and assessing the potential for future interventions. The survey was sent out to the Natural History Museum, Science Museum, Victoria & Albert Museum and Imperial College on 17th November 2017. All respondents said they would consider low-emission deliveries in the future.	

Measure	Action	Progress	Further information
		• Emissions/Concentration data • Benefits • Negative impacts / Complaints	
		Following the survey, a workshop was held in early 2018 attended by the Council and the Natural History, Science and Victoria and Albert Museums and Imperial College. This was the first time that representatives from all four organisations got together to discuss sustainability issues affecting them all. The next steps are for the businesses to continue working together to take actions like consolidation and share best practice. As per action 50 It was announced this year that Westminster City Council ((Cross River Partnership) with Lambeth, Islington, Kensington & Chelsea, Hammersmith & Fulham, Lewisham) were successful in their application to the Defra Clean Air Fund for funding to work with businesses across 5 boroughs to help reduce their emissions £232,850. In RBKC the funding will be used to focus on two areas in the borough Earl's Court Rd / Warwick Rd – GLA AQ Focus Area 116 (RB Kensington & Chelsea) and Ladbroke Grove/Westway – Borough AQ Focus Area (Kensington & Chelsea)	
53 Continue to work with our main contractors to reduce their energy	Work in detail with the Council's main contractors (SITA, Quadron, Amey) to reduce their overall energy consumption related to the Council's operations (building use	There is ongoing work with the Council's main contractors (Suez, Quadron, GLL and Amey) to reduce their energy consumption, fleet usage and operations. The contractors are included in the scope of the 40% carbon reduction target and their performance is	

Measure	Action	Progress	Further information
		• Emissions/Concentration data • Benefits • Negative impacts / Complaints	
consumption	and vehicle fleets).	monitored quarterly by the Climate Change Programme Board. In 2017/18 all our contractors decreased their carbon emissions when compared to 2007/08 (baseline year). • Suez (Council's Waste Contractor): 33.3% carbon emissions reduction since 2007/08 • GLL (Council's Leisure Centres Contractor): 6.6% carbon reduction since 2007/08 • Other Contractors: 54.8% reduction since 2007/08 New carbon reduction targets have been set up for 2019/20 for the Council's internal stakeholders and contractors.	
54 Continue to develop the Community Kitchen Garden scheme	Continue to develop the Community Kitchen Garden scheme which encourages residents and community groups to grow seasonal fresh fruit and vegetables. Local production eliminates deliveries (zero food miles) and helps tackle childhood obesity.	Ten new community kitchen gardens were installed at Sheffield Terrace, St. Clement James Centre, Sion Manning Secondary School, Convent Gardens, Pikemans Ct, Creswick House, Richmond Fellowship, Sheffield Terrace, the Curve, Bevington School.	

Measure	Action	Progress	Further information
		• Emissions/Concentration data • Benefits • Negative impacts / Complaints	
55 Pilot the commercial production of fresh products from market gardens in the borough	Set up Cultivating Kensington & Chelsea to develop market gardens, allowing the commercial production of fruit, vegetable, plant seedlings and cut flowers.	The food growing charity (social enterprise) called Cultivating Kensington and Chelsea was completed in 2016 and has been running since then. Income from plant sales is made available in the form of grants to garden clubs in the borough. Each garden club can apply for up to £300 each year. This funding helps support established garden clubs and allows new clubs to become better equipped. 13 garden clubs benefitted from the scheme this year. Weekly sales were held of fruit, vegetable and herbs seedling at Portobello Road and Olympia station during the growing season	
56 Increase recycling by Council staff members	Refresh the promotion of recycling to members of Council staff.	In 2017/18 four waste audits were carried out to monitor the recycling rate in the Council's offices. Additionally, contamination audits took place in the two main Council buildings (Kensington Town Hall and Pembroke Road offices). Eight Recycling and Energy workshops have been delivered during 2017/18 to Council staff and contractors. These workshops aim to increase staff awareness regarding what can and cannot be recycled and what can be done at work to reduce energy consumption. In total 74 members of staff benefited	

Measure	Action	Progress	Further information
		• Emissions/Concentration data • Benefits • Negative impacts / Complaints	
		from these workshops. Recycling information has been included in the Council's induction package. Recycling facilities have been installed in two community centres (Baseline Studios and Dalgarno Centre). A single-use plastics action plan was produced with the aim to reduce / ban disposable plastics from all RBKC offices. The Council organised and delivered a campaign during the National Recycling week (September 2017) to increase awareness in the offices regarding recycling contamination issues and what can be done to reduce waste. Regular communications were produced for staff and published internally via blog posts, Yammer and KCbriefly (internal newsletter). Email circulars were sent regularly to staff containing information and infographics.	
57Conduct an awareness raising campaign for residents to increase waste	Conduct awareness raising campaign for residents on waste recycling how to decrease contamination.	A communication and work plan was delivered to encourage residents to recycle more and produce less waste. This included: livery panels on waste collection vehicles, leaflets to all household explain what can be recycled and how, website updates, new street based recycling centres, the introduction of new food waste	

Measure	Action	Progress	Further information
		• Emissions/Concentration data • Benefits • Negative impacts / Complaints	
recycling rate and decrease contamination		collection in Chelsea and a borough wide garden waste service.	
58 Produce a Local Flood Risk Management Strategy.	Produce a Local Flood Risk Management Strategy (LFRMS), required by the Flood Risk Regulations 2009 and the Flood and Water Management Act 2010.	Several reports on flood risk and SuDS feasibility have been commissioned and finalised to implement the actions regarding Critical Drainage Areas. We are currently looking for funding to implement SuDS in these areas.	
59 Increase the size of the existing Counters Creek Victorian sewer system	In partnership with Thames Water, facilitate work to increase the size of the existing Counters Creek Victorian sewer system to cope with flash flooding from intense rainstorms.	Thames Water were expected to submit planning applications in 2017. However, they reconsidered the project and think that the strategic sewer is no longer needed. The Council is currently considering Thames Water's evidence. The other three elements of the scheme: Sustainable drainage systems to reduce surface water run-off entering the sewers, anti-flooding (FLIP) devices to stop the sewers surcharging into lower properties; and, local sewer improvements are still being implemented. Further updates are provided on our webpage.	
60 Support the delivery of	Support the delivery of Sustainable Drainage Systems (SuDs) both in	As per 2016. The Local Plan Partial Review (LPPR) is currently at examination with hearings held in February	

Measure	Action	Progress	Further information
		- Emissions/Concentration data - Benefits - Negative impacts / Complaints	
Sustainable Drainage Systems (SuDs) both in new developments and through retrofitting	new developments and through retrofitting, to absorb and divert as much rainwater as possible away from the sewers during periods of heavy rainfall.	and March 2018. Once the Inspector's report is received (expected in summer 2018), the Council will be in a position to adopt this policy.	
61 Retrofit SuDs in existing properties	Install SuDs such as rainwater retention features in existing properties.	Arundel Gardens was finalised in March 2017. Thames Water and Imperial College London are undertaking monitoring to ensure that the pilot project remain robust in terms of measurable outcomes so to influence future schemes. Regarding the new draft policy CE2(i), as per 2016. The Local Plan Partial Review (LPPR) is currently at examination with hearings held in February and March 2018. Once the Inspector's report is received (expected in summer 2018), the Council will be in a position to adopt this policy.	
62 Mitigate against increases in area of impermeable land by	Use the planning control process to reduce the loss of front gardens by resisting paving	As per 2016. The Local Plan Partial Review (LPPR) is currently at examination with hearings held in February and March 2018. Once the Inspector's report is received (expected in summer 2018), the Council will be in a position to adopt this policy.	

Measure	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints	Further information
stopping the paving of front gardens			
63 Promote the use of the Council's SuDs tool for small developments	Continue to promote the use of the Council's SuDs tool for small developments.	(No local air pollution benefit)	Available at https://www.rbkc.gov.uk/planning-and-building-control/planning-policy/flooding/sustainable-drainage-systems
64 Install at least one green roof	Install, as a pilot project, at least one green roof or comparable green infrastructure, in locations to be confirmed.	Action completed.Two green roofs were installed at Al Manaar Muslim Cultural Heritage Centre and on an Octavia social housing estate on Portland Road in 2017.	
65 Promote green infrastructure (walls, roofs) and other eco-initiatives in schools	Further develop school participation in green infrastructure and eco-initiatives that enhance the curriculum, involve parents and lead to reduction of car use in collaboration with the Healthy School Partnership.	The service delivered 149 Environmental education sessions and 303 Forest School Sessions over the last 12 months, engaging 7784 pupils. The Council have participated in 3 "ask the expert Sessions" where pupils have the opportunity to ask their expert about air pollution and find out what they can do to improve local air quality	
66 Support the development of food	Work with schools to encourage and support them in the delivery of food growing gardens.	10 schools have been supported to grow fresh fruit, vegetable and herbs and 3 new food growing gardens have been installed.	

Measure	Action	Progress	Further information
		• Emissions/Concentration data • Benefits • Negative impacts / Complaints	
growing gardens in schools			
67 Support the development of community food waste composting initiatives	Encourage and support the development of small scale community food waste composting initiatives	3 food waste composting schemes have been established and more being developed. A food waste collection pilot for 2000 properties in Chelsea has also been established.	
68 Investigate whether targeted greening of areas can reduce exposure to poor air quality	Assess the benefits of greening measures on school premises and other institutions close to busy roads, using the evaluation report on the green screen at St Cuthbert with St Matthias school and its capacity to reduce NO2 and fine particle levels.	This action has been completed and previously reported upon. The study (see 'Further Information) and the Council's experience of utilising green infrastructure has been used to inform the Mayor's School Air Quality Audits, undertaken in 3 schools in the borough.	Green Screen Study published at https://www.londonair.org.uk/london/ asp/news.asp?newsId=NKGreenscreen2017 The screen was found to be an effective pollution barrier once the ivy had started growing and a significant impact could be seen once the screen had matured. The ivy screen led to a decrease in the pollution concentrations on the playground side of the screen by 24% for NO2 and 38% for PM10; both were higher than the measurement

Measure	Action	Progress	Further information
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			uncertainty and thus significant. Comparing school hours independently a reduction in concentrations of up to 36% and 41% were found for NO2 and PM10, respectively. This demonstrates that the screen is very effective during daytime hours, when both emissions and exposure are highest.
69 Build and publicise green screens between Westway roads and sports area	In cooperation with the Westway Trust and TfL, install green screens adjacent to the games area, and next to one of the Westway sliproads and raise awareness of air quality in the local environment.	54 m (2.8 m high) length of ivy based green screening installed and completed by April 2016. See action 36, The Council continue to work with Westway Trust to improve air quality, such as the Vehicle Idling Action Day that was completed early 2018. As per action 50 It was announced this year that Westminster City Council ((Cross River Partnership) with Lambeth, Islington, Kensington & Chelsea, Hammersmith & Fulham, Lewisham) were successful in their application to the Defra Clean Air Fund for funding to work with businesses across 5 boroughs to help reduce their emissions £232,850. In RBKC the funding will be used to focus on two areas in the borough. One of which will be Ladbroke Grove/Westway – Borough AQ Focus Area (Kensington & Chelsea) A	

Measure	Action	Progress	Further information
		• Emissions/Concentration data • Benefits • Negative impacts / Complaints	
		number of independent traders and community groups occupy the space under the Westway. The Westway Trust coordinate business in the area. A range of independent traders and market stall holders and there is an active night time economy with a number of restaurants	
70 Use greening measures to reduce pedestrians' exposure to poor air quality on Cromwell Road	Develop the air quality aspect of the Cromwell Road green corridor project. Proposal set to re-landscape part of Cromwell Road's southern sidewalk.	This project is now managed by TfL and is on hold as scheme being linked to other local transport schemes, but landscaping improvements along the southern section of West Cromwell Road have been completed.	
71 Review planning applications to ensure that biodiversity is improved, not damaged by new build and refurbishment	Check/review planning applications to ensure that development impacts on the borough's ecology are minimised and to maximise biodiversity gains from development by creating new habitat through green roofs.	It is estimated that 30% of major planning applications have been commented upon	

Measure	Action	Progress	Further information
		- Emissions/Concentration data - Benefits - Negative impacts / Complaints	
72 Join Climate Local, the commitment by local authorities to address climate change	Join Climate Local to take advantage of the Local Government Association initiative providing additional support to reduce CO2 emissions and improve resilience to the effects of climate change.	Action completed – The Climate Local does not exist anymore.	RBKC signed in March 2015 the Local Government Associations (LGA) Climate Change commitment – called Climate Local, which aimed to support Councils' efforts both to reduce carbon emissions and to increase resilience to a changing climate
73 Require developers to contribute to local air quality improvements	Increase air quality action fund contributions to directly provide a resource for air quality specialists and to achieve actual air quality improvements.	In the financial year 2016/17, £37,000 has been collected for air quality through s106 agreements. Collections from S106 agreements for air quality purposes will continue.	
74 Push for the borough to be included in the Ultra Low Emission Zone (ULEZ)	As part of the TfL/GLA Engagement Group, enter discussions with the new Mayor of London on the potential to increase the air quality benefits in the borough of the ULEZ proposal, and/or tightening the LEZ.	The Leadership Team fully supported the latest (and final) of the Mayor's consultations to extend the ULEZ to the N/S Circulars in February 2018. If the proposals are accepted, the extension to include RBKC will come into force for HGVs in October 2020 and for light vehicles in October 2021.	
75 Support TfL in ensuring the entire borough is part of the 'Cycle Hire' scheme	Support the expansion of the Cycle Hire scheme north of the Westway.	TfL is not planning to extend Cycle Hire any further at this time, however the recent arrival of dockless bicycle operators has potential to help fill this gap.	

Measure	Action	Progress - Emissions/Concentration data - Benefits - Negative impacts / Complaints	Further information
76 Work with TfL to reduce emissions from buses in the borough	Lobby and work with TfL to ensure that all bus routes through the borough are ULEZ-compliant and explore options for hybrid buses to run in pure electric mode through the most polluted areas.	We have worked with TfL to improve bus journey times along Kensington High Street as part of the LEBZ initiative. Changes are due to be made to the signal timings at the junction of Kensington Church Street and Kensington High Street which will reduce the time buses spend queuing at these lights.	
77 Work with TfL to deliver Crossrail stations in the borough	Work with TfL on delivery of Crossrail 2 station in the King's Road area.	No progress. TfL's consultation on Crossrail 2 is on hold pending outcome of the Independent Affordability Review	
78 Lobby TfL for increased public transport links in the borough	Continue to work with Crossrail sponsors on feasibility of a Kensal Portobello Crossrail station at Canal Way.	GRIP 1 study completed, and focus is now on railway timetable modelling work.	
79 Lobby TfL and the Mayor of London to reduce emissions from taxis	Lobby TfL/Mayor of London to make the decommisioning scheme for 10 year old taxis mandatory. .	The council collaborated with London Councils on their consultation response to the Mayor of London's Environment Strategy and expressed that the plans do not go far enough to cut emissions from taxis and private hire vehicles. It specified that a requirement for zero emission capable taxis by 2033 is too late.	

Measure	Action	Progress	Further information
		- Emissions/Concentration data - Benefits - Negative impacts / Complaints	
80 Lobby TfL and the Mayor of London to raise taxi drivers' awareness of techniques to reduce emissions	Lobby TfL/Mayor of London to establish eco-driving training as a requirement for all taxi and private cab drivers.	We are working with TfL and the Taxi trade to reduce the Taxi congestion problems around Harrods. If successful, this should reduce the amount of taxi idling which takes place here.	
81 Lobby the government for higher environmental building standards	Continue lobbying the Government so that Local Authorities are allowed to set higher environmental standards for new buildings and major refurbishments that are higher than the current building regulations (Housing Standard Review).	As per 2016. The Government has no appetite to review the environmental standards. However, as stated in 26 and 27 above, the standards being used in London are more onerous than the national standards. For major residential schemes the Council is seeking zero carbon homes in-line with the London Plan. The Draft London Plan was consulted upon late 2017-early 2018 and a cross-departmental response was submitted by the Council. Local Plan Policy CE1 Climate Change has been updated through the Local Plan Partial Review - see www.rbkc.gov.uk/planningpolicy. To accord with the requirements of the London Plan, from the 1 April 2017, the Council fully implemented the	

Measure	Action	Progress	Further information
		- Emissions/Concentration data - Benefits - Negative impacts / Complaints	
		zero carbon standard through the creation of a Carbon Offset Fund.	
82 Ensure that responses to formal consultations focus on reducing or eliminating emissions	Assert the Council's aspirations for improving air quality and tackling climate change in all responses to Government and regional consultations.	The Council has continued to respond to important consultation exercises such as for the London's Environment Strategy, London Plan etc. Some responses on Climate Change are carried out jointly through the London Environment Coordinators Forum and/or London Councils.	
83 Lobby tyre, brake and clutch manufacturers to use materials which reduce small particles released through wear	Instigate and support collaborative research and development to improve tyre, brake and clutch technology with materials that release substantially fewer particulates.	The Council has been compiling a list of manufacturers to be contacted as well as seeking and reviewing research data on tyre, brake and clutch wear in preparation for letters to be sent in 2018/2019.	

3.   Planning Update and Other New Sources of Emissions

Table L.   Planning requirements met by planning applications in RBKC in 2017

Condition	Number
Number of planning applications where an air quality impact assessment was reviewed for air quality impacts	*141*
Number of planning applications required to monitor for construction dust	8
Number of CHPs/Biomass boilers refused on air quality grounds	0
Number of CHPs/Biomass boilers subject to GLA emissions limits and/or other restrictions to reduce emissions	13
Number of developments required to install Ultra-Low NO$_x$ boilers	17
Number of developments where an AQ Neutral building and/or transport assessments undertaken	8
Number of developments where the AQ Neutral building and/or transport assessments not meeting the benchmark and so required to include additional mitigation	3
Number of planning applications with S106 agreements including other requirements to improve air quality	4
Number of planning applications with CIL payments that include a contribution to improve air quality	CIL is a single payment and not attributed to specific items.
NRMM: Central Activity Zone and Canary Wharf Number of conditions related to NRMM included. Number of developments registered and compliant. Please include confirmation that you have checked that the development has been registered at www.nrmm.london and that all NRMM used on-site is compliant with Stage IIIB of the Directive and/or exemptions to the policy.	*3 CONDITIONS*
NRMM: Greater London (excluding Central Activity Zone and Canary Wharf) Number of conditions related to NRMM included. Number of developments registered and compliant. Please include confirmation that you have checked that the development has been registered at www.nrmm.london and that all NRMM used on-site is compliant with Stage IIIA of the Directive and/or exemptions to the policy.	*8 conditions included* *9 registered and compliant (4 self compliant)* *1 unregistered/uncompliant and being chased.*

3.1   *New or significantly changed industrial or other sources*

No new *or significantly changed industrial or other sources.*

Appendix A   Details of Monitoring Site QA/QC

A.1   *Automatic Monitoring Sites*

Data management and Local Site Operator duties for the council's automatic monitoring station werecompleted by a contractor, the Environmental Research Group at King's College London until November 2017. Following a procurement process, these duties were taken over by an alternative contractor, Ricardo AEA.

All real-time data from the monitoring station is independently collected and validated on a daily basis. A combination of automatic and manual checks is used to assess data, identify and diagnose potential equipment faults and adjust data to take account of calibration tests. Automatic overnight calibrations are supplemented with regular manual calibrations of analysers. The procedures used conform to the requirements of the UK Automatic Urban and Rural Network Management and Coordination Units.

All data is also formally ratified. During this process the validation decisions can be ratified with the benefit of hindsight and using greater information, such as service records, calibration records and the results of station audits. Station audits were carried out every 6 months by the National Physical Laboratory, which is UKAS (United Kingdom Accreditation Service) accredited (when King's college was the contractor). The Station Audits are now carried out by Ricardo AEA in house audit team.

Routine calibration and independent checks

Local site visits are undertaken fortnightly at the urban background site and weekly for the roadside Tapered Element Oscillating Microbalance (TEOM-FDMS) for the purposes of calibration, filter changes and instrument cleaning. Equipment is additionally serviced at regular intervals.   Routine calibrations are undertaken by contractors.

Independent calibration and audit is carried out by Defra appointed contractors as part of their AURN responsibilities for the North Kensington site and for the Cromwell Rd site through a separate contract. Calibration certificates are provided by AEAT. The National Physical Laboratory (NPL) undertake the London affiliate inter-calibration exercise. The following checks are performed for the oxides of nitrogen, sulphur dioxide and carbon monoxide analysers:

Analyser response factors: The analyser samples a stable 'inter-calibration standard' which has been validated against a network primary standard. The analyser also samples from a certified zero air source.

Analyser linearity: The analyser response to a series of known concentrations covering the analyser range is noted. A linear regression is then performed on the results.

Analyser 'noise' levels: This is the standard error of ten successive spot readings of analyser readings when fully stabilised on zero.

Nitrogen Oxides analyser converter efficiency: NO_x analyser converter efficiency is determined using Gas Phase Titration at a range of concentrations, this uses a high concentration of NO and a known amount of O_3 which is subsequently converted to NO_2.

Estimation of site cylinder concentrations: The concentrations are evaluated by sampling from the

site cylinder and comparison to analyser response factors determined from the 'inter-calibration standard'.

<u>For particle analysers the following checks are performed</u>: Mass transducer calibration: The mass transducer is calibrated by placing pre-weighed filters on it and noting the change in the frequency that is induced.

<u>Analyser flow rates</u>**:** Flow rates are measured by calibrated flow audit measurement systems. Leak checks are also carried out.

<u>PM$_{10}$ Monitoring Adjustment</u>

TEOM

In the past TEOM data was corrected using a simple multiplication factor of 1.3. Co-located instruments (TEOM and Partisol) at North Kensington in the past enabled us to compare the results, this had shown that adjusting the TEOM data by a factor of 1.3 gave a reasonable approximation of the annual average, but less reliable when applied to exceedances of the daily objective. However co-location studies have shown that the instrument was not equivalent to the reference method and the FDMS measurement device was developed to correct the problem and in comparisons was shown to be equivalent to the EU reference method.   In 2008/09 Defra began the replacement of TEOM units with FDMS units on the particulate monitoring network. Government guidance LAQM TG(09) states that the Volatile Correction Model (VCM) should be used to correct TEOM measurements for Local Air Quality Management purposes. PM10 data is mainly collected using FDMS units and a partisol.

Data has been collected from the London Air Quality Network (LAQN) website (www.londonair.org.uk) operated by King's ERG. TEOM measurements on the website are now adjusted by the CVC. The VCM uses FDMS purge measurements to correct TEOM measurements for the loss of volatile material. This method is now recommended in Defra's TG (09) as the preferred method for correcting TEOM measurements for Local Air Quality Management purposes. This correction has been undertaken for data in the Council's two TEOM sites from 2004. Data corrected using both the simple multiplication factor and the VCM method is included in the report.

There have been several updates in equipment at KC1 in 2017. The TEOM stopped working in January 2017 and was removed from the site. Measurement by FIDAS started in 2017 for PM2.5 and PM10, after comparison studies on site and this will replace the FDMS for 2018 measurements.

QA/QC of Gravimetric monitoring-Partisol

The Partisol operating at the Earls Court Road site since May 2002 is a gravimetric sampler which is equivalent to the EU reference method. Reference to the report has also been made to other

Partisols operating in the borough by Defra. However, the co-location trail2 raised concerns over the filter media used in these instruments and showed that an over estimation in measured concentrations resulted from the use of quartz filters. The filters used at the site are Teflon coated glass fibre (Emfab) filters which are not affected in the same way as quartz filters[7].   No correction factor is required for gravimetric instruments.

Verification of ambient temperature, verification of filter temperature, verification of ambient pressure and humidity, internal leak check, external leak check and flow verification are undertaken for the partisol at the time of audit and service.

The partisol stopped working at Earls Court in the later part of the year, it was not possible to repair the equipment and PM10 monitoring will be completed by BAM measurement in 2018.

A.2   Diffusion Tube Quality Assurance / Quality Control

Diffusion tube analysis is carried out in Gradko's UKAS accredited laboratory. They use a 50% in Acetone preparation method. Their limit of detection is 0.066µg NO_2. Laboratory preparation and analysis of the tubes is strictly controlled and Gradko participate in 2 major independent schemes to assess their performance.

1) Workplace Analysis Scheme for Proficiency (WASP) and AIR PT
Gradko participates in the AIR proficiency testing for NO_2 diffusion tube scheme on a quarterly basis. AIR PT is a new scheme, started in April 2014, operated by LGC Standards and supported by the Health and Safety Laboratory (HSL). AIR PT has combined two long running proficiency testing schemes LGC Standards. STACKS PT scheme and HSL WASP PT scheme. AIR is a recognised performance-testing programme for labs undertaking NO_2 diffusion tube analysis as part of the UK NO_2 monitoring network. Further information on proficiency testing can be found at Defra's Local Air Quality Management webpages.

Table A2.1   Laboratory Summary Performance for AIR NO2 PT Rounds 18, 19, 21 and 22 2017

AIR PT AR012	AIR PT AR013	AIR PT AR015	AIR PT AR016
January – February 2017	April – May 2017	July – August 2017	September – October 2017
100%	100%	100%	100%

2) Network Field Inter-comparison Exercise

This exercise is operated by the National Physical Laboratory (NPL) and tests the performance of the diffusion tubes and lab analysis procedures and involves the regular exposure of a triplet of tubes at an Automatic Urban Network (AUN) site where real-time NO_2 levels are also measured using a chemiluminescent analyser.

Gradko operates well within the required level of performance in terms of accuracy and precision, as shown by the results below. The NPL performance criterion for precision is that the mean coefficient

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2 Maggs, R., Harrison, D., Carslaw, D. , Stevenson, K. (2009) Analysis of Trends in Gravimetric Particulate Mass Measurements in the United Kingdom

of variation for the full year should not exceed 10%, should this be achieved the precision is given a score of 'good'.

Annual Mean Bias
Performance Target: +25%
Gradko Annual Mean Bias: +6%

Precision
Performance Target: 10%
Gradko Precision: Good

Gradko International Ltd performs blank exposures that serve as a quality control check on the tube preparation procedure

Benzene diffusion tube data

All benzene tubes were analysed by a UKAS accredited laboratory using desorption scanning gas chromatography/mass spectrometry (GC/MS). This method of analysis gives unequivocal identification of BTEX peaks. The analysis is carried out in accordance with the Gradko International Laboratory Quality Procedure GLM 4.

The accuracy of the Laboratory measurements are monitored by participation in the Laboratory Measurement Proficiency Scheme.

The measurement method used in the benzene survey was consistent with the sampling, analysis and QA/QC requirements of EN 14662-4: 2005 Ambient air quality – Standard method for measurement of benzene concentrations – Part 4: Diffusive sampling followed by thermal desorption and gas.

Diffusion Tube Bias Adjustment Factors:

NO_2 diffusion tube bias adjustment factors for 2001 to 2017 used in the reports. Mean correction factor and %bias from Co-location LWEP Studies 2001-2015 – N Kensington

Table A2.2   Bias Adjustment Factors (BAF) used by RBKC 2001-2017

Year	Mean Bias Adjustment	Mean % Bias
2001	1.37	-26.00
2002	1.35	-26.00
2003	1.11	-10.00
2004	1.10	-9.00
2005	1.03	-3.00
2006	1.06	
2007	1.01	
2008	0.98	
2009	1.00	1.14
2010	1.06	-4.78
2011	1.02	-0.91

Year	Mean Bias Adjustment	Mean % Bias
2012	1.04	-3
2013	1.14	-10
2014	1.03	-3
2015	1.07	-6
2016	1.15	-13
2017	1.18	-15

Table A2.3 Bias Adjustment Factor and % Bias of LWEP Co-Location Study 2017 (North Kensington)

Diffusion Tube (KC47)	Continuous Analyser	Correction Factor (A)	% Bias based on continuous monitor (B)
29.0	32.7	1.18	-15

Source: Version 02 Annual NO2 Diffusion Tube Report 2017 prepared for Royal Borough Kensington and Chelsea and the London Borough of Hammersmith and Fulham

Factor from Local Co-location Studies

Bureau Veritas conduct an 'in-house' co-location study to establish an LWEP bias adjustment factor based on triplicate NO_2 diffusion tubes sampling concurrently located with continuous analysers for a number of local authorities. They employ the DIFTAB.xls spreadsheet to calculate the factor.

Table A2.4   Bias Adjustment Factor and % Bias of LWEP Co-Location Study 2017

		Diffusion Tube	Continuous Analyser	Correction Factor (A)	% Bias based on continuous monitor (B)
Kensington	North Kensington	29.0	32.7	1.18	-15
Kensington	Cromwell Road	59.9	50.5	0.86	17
LWEP	Bloomsbury	40.4	37.9	0.94	7
Croydon	Park Lane	50.6	45.8	0.91	10
Croydon	London Road	51.5	43.4	0.84	19
Greenwich	Eltham	20.4	19.8	0.97	3
Greenwich	Blackheath	44.0	38.7	0.88	14
Greenwich	Westthorne Av	40.0	39.2	0.98	2
Greenwich	Burrage	33.2	35.9	1.08	-8
Greenwich	Woolwich Flyover	74.2	66.0	0.89	13
Greenwich	Bexley Falconwood	47.5	40.6	0.85	17
Overall % Bias					**7.18**
Overall Bias Adjustment Factor				**0.93**	

Discussion of Choice of Factor to Use

For 2017 a local bias adjustment factor based on the North Kensington monitoring station was considered to be the most suitable as it is based on data from the borough's AURN affiliated site which has triplicate diffusion tubes co-located with it. Also comparison of the local factor and the LWEP with other co-located sites within the borough showed it gave the best fit to the continuous monitoring data. (Data for monitoring stations taken according to diffusion tube calendar dates)

Table A2.5   Bias adjustment factor comparison

	North Kensington (KC47)	Knightsbridge (KC49)	Kings road (KC56)	Cromwell Road
Continuous monitoring AM data	32.6	Insufficient diffusion tube data capture to include this year	62.6	51.2
NK Local bias adjusted DT AM data	34.19	Insufficient diffusion tube data capture to include this year	69.72	72.71
LWEP bias adjusted DT AM data	26.98	Insufficient diffusion tube data capture to include this year	54.95	57.31

NK – North Kensington Diffusion tubes

A.3   Adjustments to the Ratified Monitoring Data

Short-term to Long-term Data Adjustment

Where data capture is less than 75% of a full calendar year (less than 9 months), the mean has been "annualised" – i.e. adjusted using the methodology outlined in LLAQM.TG(16) before being compared to annual mean objectives.

Table M.   Short-Term to Long-Term Monitoring Data Adjustment

Earls Court Partisol Data- data capture 73%

Site	Site Type	Annual Mean (µg/m³)	Period Mean (µg/m³) 01/01/2017- 25/10/2017	Ratio
North Kensington- RBKC (data capture fdms 86%)	Urban Background	16.297	16.473	0.989
Horseferry Road- City of Westminster (data capture for PM10 was 93%	Urban Background	16.762	17.382	0.964
			Average	0.977

Estimate of the annual mean is 27.338 multipled by 0.977= 26.705
Annual mean remains as 27

Annualisation of Cromwell Road FDMS pm2.5 data- data capture 72%

Site	Site Type	Annual Mean (µg/m³)	Period Mean (µg/m³) 01/01/2017- 27/10/2017	Ratio
Camden Bloomsbury (data capture fdms 85%)	Urban Background	13.499	13.492	1.001
Hillingdon-Harlingdon (data capture for PM10 was 100%	Urban Background	9.293	9.562	0.972
			Average	0.986

Estimate of the annual mean is 16.990 multipled by 0.986= 16.755
Annual mean remains as 17

Diffusion Tube Data Annualisation for KC35

	Start Date	End Date (UP UNTIL)	Background site (North Kensington) Am	Background site (North Kensington) Pm	Background site (Westminster-Horseferry Road) Am	Background site (Westminster-Horseferry Road) Pm	Diffusion Tube Site
January	4th January 2017	1st February 2017	62.18	62.18			71.15
February	1st February 2017	1st March 2017	36.17	36.17	40.66	40.66	69.36
March	1st March 2017	29th March 2017	31.2	31.2	48.24	48.24	63.26
April	29th March 2017	26th April 2017	27.625	27.625	43.45	43.45	70.3
May	26th April 2017	31st May 2017	29.082	29.082	40.76	40.76	62.72
June	31st May 2017	28th June 2017	23.36		28.74		
July	28th June 2017	2nd August 2017	19.98		23.92		
August	2nd August 2017	30th August 2017	25.92	25.92	22.52	22.52	69.54
September	30th August 2017	27th September 2017	29.63		31.02		
October	27th September 2017	1st November 2017	30.3		31.41		
November	1st November 2017	6th December 2017	42.11		45.33		
December	6th December 2017	3rd January 2018	36.13		36.16		
		annual mean 2017	32.80725	35.36283333	35.65545455	39.126	67.721667
							measured mean * annualisation factor
			Ratio AM/PM		RATIO AM/PM		62.271113

				0.9277325 06		0.91129823	
				AVERAGE RATIO AM/PM			
				0.9195153 68	annualisation factor		

Distance Adjustment

If an exceedance is measured at a monitoring site which is not representative of public exposure, the procedure specified in LLAQM.TG(16) has been used to estimate the concentration at the nearest receptor.

	Enter data into the pink cells					
Site Name/ID	Distance (m)		NO$_2$ Annual Mean Concentration (µg/m^3)			Comment
	Monitoring Site to Kerb	Receptor to Kerb	Background	Monitored at Site	Predicted at Receptor	
kc2	4.0	2.0	33.0	51.0	54.5	Predicted concentration at Receptor above AQS objective.
kc3	1.5	1.0	33.0	66.0	68.9	Predicted concentration at Receptor above AQS objective.
kc4	8.0	1.0	33.0	63.0	84.6	Predicted concentration at Receptor above AQS objective.
kc5	0.5	1.5	33.0	78.0	69.3	Predicted concentration at Receptor above AQS objective.
kc31	3.5	1.0	33.0	53.6	**60.6**	Predicted concentration at Receptor above AQS objective.

kc33	1.1	6.0	33.0	108.9	**<u>82.4</u>**	Predicted concentration at Receptor above AQS objective.
kc34	26.0	30.0	33.0	44.9	**43.9**	Predicted concentration at Receptor above AQS objective. Warning: your receptor is more than 20m further from the kerb than your monitor - treat result with caution. Warning: your monitor is more than 10m further from the kerb than your receptor - treat result with caution.
kc35	8.0	11.0	33.0	73.5	**<u>69.0</u>**	Predicted concentration at Receptor above AQS objective.
kc38	1.7	1.0	33.0	**122.3**	**<u>133.0</u>**	Predicted concentration at Receptor above AQS objective.

kc39	8.1	30.0	33.0	35.7	34.4	Warning: your receptor is more than 20m further from the kerb than your monitor - treat result with caution.
kc42	6.0	8.0	33.0	46.6	**45.4**	Predicted concentration at Receptor above AQS objective.
kc45	13.0	26.0	33.0	51.6	**46.2**	Predicted concentration at Receptor above AQS objective. Warning: your receptor is more than 20m further from the kerb than your monitor - treat result with caution. Warning: your monitor is more than 10m further from the kerb than your receptor - treat result with caution.
kc48	7.0	8.0	33.0	73.7	**<u>71.9</u>**	Predicted concentration at Receptor above AQS objective.
kc49	4.0	1.0	33.0	64.7	**<u>77.0</u>**	Predicted concentration at Receptor above AQS objective.

kc50	4.0	6.0	33.0	54.0	**51.6**	Predicted concentration at Receptor above AQS objective.
kc52	2.6	5.0	33.0	57.6	**53.6**	Predicted concentration at Receptor above AQS objective.
kc54	3.1	3.3	33.0	72.7	**<u>72.1</u>**	Predicted concentration at Receptor above AQS objective.
kc56	9.0	1.0	33.0	69.7	**<u>98.9</u>**	Predicted concentration at Receptor above AQS objective.
kc57	3.0	5.0	33.0	58.7	**55.3**	Predicted concentration at Receptor above AQS objective.
kc58	13.0	1.0	33.0	64.3	**<u>97.9</u>**	Predicted concentration at Receptor above AQS objective. Warning: your monitor is more than 10m further from the kerb than your receptor - treat result with caution.
kc59	0.7	1.0	33.0	76.9	**<u>73.9</u>**	Predicted concentration at Receptor above AQS objective.

KC60	0.7	8.0	33.0	73.2	**54.8**	Predicted concentration at Receptor above AQS objective.
KC61	10.0	30.0	33.0	53.6	**45.1**	Predicted concentration at Receptor above AQS objective. Warning: your receptor is more than 20m further from the kerb than your monitor - treat result with caution.
KC64	3.5	11.5	33.0	47.7	**43.0**	Predicted concentration at Receptor above AQS objective.
KC68	0.5	1.0	33.0	53.2	**50.7**	Predicted concentration at Receptor above AQS objective.

Appendix B   Full Monthly Diffusion Tube Results for 2017

Table N.   NO$_2$ Diffusion Tube Results

Site ID	Valid data capture for monitoring period % [a]	Valid data capture 2017 % [b]	Annual Mean NO$_2$												Annual mean – raw data [c]	Annual mean – bias adjusted [c]
			Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec		
KC 31 - Ladbroke Library	100%	100%	**61.89**	**45.96**	**41.99**	**41.61**	**51.44**	**49.94**	**42.20**	37.55	**40.79**	**43.33**	**48.53**	**39.84**	**45.42**	**53.60**
KC 32 - Holland Park	92%	92%	**42.80**	28.90	24.70	19.56	1.09[NC]	**45.08**	17.88	19.80	23.89	23.97	26.88	Tube Missing	27.35	32.27
KC 33 - A4 Junction	100%	100%	**99.31**	**84.18**	**90.91**	**72.61**	**80.29**	**97.17**	**83.52**	**83.88**	**77.04**[G]	**80.90**[G]	**169.64**[G CS]	**88.02**	**92.29**	**108.90**
KC 34 - Dove House Green	100%	100%	**55.36**	**43.21**	36.58	29.89	32.13	31.77	29.27	28.65	2.59[NC]	**41.97**[G]	**46.53**[CS]	42.93	38.03	**44.87**
KC 35 - Brompton Rd	50%	50%	**71.15**	**69.36**	**63.26**	**70.30**	**62.72**	Tube Missing	Tube Missing	**69.54**	Tube Missing	Tube Missing	Tube Missing	Tube Missing	**62.27 (annualised)**	**73.48**

Site ID	Valid data capture for monitoring period %[a]	Valid data capture 2017 %[b]	Annual Mean NO$_2$												Annual mean – raw data[c]	Annual mean – bias adjusted[c]
			Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec		
KC 38 - Earls Court Station	92%	92%	**83.88**	**84.23**	**79.41**	**76.47**	**78.01**	**87.41**	**88.48**	Tube Missing	**68.44**[G]	**81.21**[G]	**326.56**[G]	**86.10**	**103.65**	**122.31**
KC 39 - Upcerne Road	100%	100%	**46.02**	38.96	29.81	24.17	25.84	23.87	21.29	24.08	28.43	29.19	38.96	31.93	30.21	35.65
KC 40 - Cottage Place	17%	17%	**51.60**	Tube Missing	Tube Missing	Tube Missing	Tube Missing	Tube Missing	Tube Missing	32.52	Tube Missing	Tube Missing	Tube Missing	Tube Missing	**42.06**	**49.63**
KC 41 - Ladbroke Crescent	92%	92%	**50.88**	35.82	32.00	24.88	1.08[NC]	Tube Missing	24.69	25.43	30.85	28.13	38.48	36.54	32.77	38.67
KC 42 - Pembridge Library	100%	100%	**51.45**	**45.50**	**39.86**	33.62	34.91	34.59	35.07	34.34	37.46	36.98	**45.94**	**44.27**	**39.50**	**46.61**
KC 43 - St Marks Grove	100%	100%	**43.49**	31.29	25.22	20.49	25.67	21.04	18.68	20.57	25.44	2.16[NC]	84.85[G]	32.87	31.78	37.50
KC 44 - Donne Place	100%	100%	**50.03**	**41.09**	36.38	28.89	33.15	29.97[CS]	25.82	24.03	36.87	33.73	**44.40**	**43.02**	35.62	**42.03**

Site ID	Valid data capture for monitoring period % [a]	Valid data capture 2017 % [b]	Annual Mean NO$_2$												Annual mean – raw data [c]	Annual mean – bias adjusted [c]
			Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec		
KC 45 - Chatsworth Court	100%	100%	**55.88**	**48.52**	**44.23**	33.50	**46.40**	**47.08**	38.36	39.20	**42.01**	40.93	**45.84**	43.02	**43.75**	**51.62**
KC 47 - Sion Manning School	100%	100%	**47.21**	32.71	25.97	22.25	22.40	22.73	18.80	35.71	25.45	26.71	37.04	32.43	29.12	34.36
KC 47 - Sion Manning School	100%	100%	**47.45**	31.99	27.23	20.97	22.96	23.00	18.62	23.12	**47.66**	25.06	35.04	32.15	29.60	34.93
KC 47 - Sion Manning School	92%	92%	**47.74**	32.13	24.72	20.17	24.07	22.69	20.89	1.36*[Nc]	25.26	26.48	33.70	32.36	28.20	33.28
KC 48 - Sloane Square	100%	100%	<u>**69.54**</u>	<u>**65.74**</u>	<u>**63.63**</u>	**57.09**	<u>**60.16**</u>	<u>**66.95**</u>	<u>**59.60**</u>	23.04	**54.89**	<u>**81.30 G**</u>	<u>84.97</u>	**62.64**	**62.46**	<u>**73.71**</u>
KC 49 - Hans Road	17%	17%	Tube Missing	Tube Missing	Tube Missing	Tube Missing	**48.26**	Tube Missing	Tube Missing	<u>**61.47**</u>	Tube Missing	Tube Missing	Tube Missing	Tube Missing	**54.87**	<u>**64.74**</u>
KC 50 - Chelsea PG (gate)	92%	92%	**43.62**	**52.11**	**51.55**	**47.87**	27.54	**50.93**	39.22	<u>**63.89**</u>	**41.73**	**45.70**	Tube Missing	**39.55**	**45.79**	**54.03**

Site ID	Valid data capture for monitoring period %[a]	Valid data capture 2017 %[b]	Annual Mean NO$_2$												Annual mean – raw data[c]	Annual mean – bias adjusted[c]
			Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec		
KC 51 - Chelsea PG (met)	100%	100%	61.34	33.11	30.03	29.92	43.72	26.39	20.67	40.68	27.40	29.02	38.19	31.22	34.31	40.48
KC 52 - Sloane Avenue	100%	100%	64.00	49.81	50.29 cs	49.90[c] s	36.67	48.83	41.70	23.50	45.48	41.20	84.70[G]	49.39	48.79	57.57
KC 53 - Walmer House	100%	100%	57.06	44.02	41.72	35.34	50.22	36.49	36.63	42.68	40.43	39.17	44.14	43.34	42.60	50.27
KC 54 - Natural History Museum	83%	83%	69.95 s	73.50	67.76	45.11	52.88	53.96	43.89	Tube Missing	Tube Missing	81.21 G	84.62[G]	67.15	64.00	75.52
KC 54 - Natural History Museum	100%	100%	72.72	69.72	61.77	54.29	33.86	54.26	44.05	42.09	45.18	81.18	73.13	67.45	58.31	68.80
KC 54 - Natural History Museum	83%	83%	69.22	72.93	67.11	54.40	Tube Missing	Tube Missing	44.80	48.06	49.08	81.17 G	73.11[G]	65.67	62.56	73.81
KC 55 - Blantyre Street	100%	100%	57.65	39.75	40.37	35.01	60.66	34.31	27.75	48.96	35.62	33.66	45.80	41.79	41.78	49.30

Site ID	Valid data capture for monitoring period %[a]	Valid data capture 2017 %[b]	Annual Mean NO_2												Annual mean – raw data [c]	Annual mean – bias adjusted [c]
			Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec		
KC 56 - Chelsea Old Town Hall	100%	100%	**70.36**	56.20	59.00	49.96	49.47	**65.63**	57.94	30.52	57.99	**81.35** [G]	70.94 [G]	59.68	59.09	**69.72**
KC 57 - Sloane St/Pavilion St	92%	92%	55.86	47.92	47.07 [cs]	51.03 [cs]	45.78	42.10 [cs]	42.21	55.71	Tube Missing	40.26	71.25 [G]	47.63	49.71	58.66
KC 58 - Kensington High Street	92%	92%	**60.36**	52.56	56.74	**63.87**	**63.54**	53.75	47.97	41.68	Tube Missing	37.66	70.86 [G]	50.85	54.53	**64.35**
KC 59 - Kens High St/Argyle St	100%	100%	**75.70**	**63.88**	**73.59**	48.32	51.98	**74.88**	**66.12**	43.99	**61.67**	**81.44** [G]	73.07 [G]	**67.22**	**65.16**	**76.88**
KC 60 - Old Brompton Rd	92%	92%	**71.69**	58.30	55.74	Tube Missing	45.74	**67.61**	52.92	**66.50**	53.97	**81.47** [G]	72.65 [G]	55.48	**62.01**	**73.17**
KC 61 - Limerston Street	100%	100%	**66.64**	50.57	45.72	40.37	38.44	**44.14**	35.91	**53.18**	38.27	**41.22**	42.18	48.69	45.44	53.62

Site ID	Valid data capture for monitoring period %[a]	Valid data capture 2017 %[b]	Annual Mean NO$_2$												Annual mean – raw data[c]	Annual mean – bias adjusted[c]
			Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec		
KC 64 - Warwick Rd	100%	100%	64.50	49.17	40.62	34.57	32.80	36.43	34.10	34.11	37.11	37.48	44.24	39.99	40.43	47.70
KC 65 - Barlby Rd	100%	100%	54.19	37.25	31.63	26.86	36.90	36.90	25.99	36.49	30.44	32.10	39.37	38.14	35.52	41.92
KC 66 - Acklam Rd	83%	83%	61.04	Tube Missing	40.66	35.06	32.32	Tube Missing	29.99	35.87	37.70	37.31	44.86	46.68	40.15	47.38
KC 67 - Southern Row	100%	100%	56.63	42.96	37.68	37.06	40.47	33.95	29.99	36.12	36.91	36.53	48.91	42.89	40.01	47.21
KC 68 - Exhibition Rd	100%	100%	57.66	47.74	43.65	46.31	32.76	37.77	34.60	37.59	41.29	40.67	73.12	47.85	45.08	53.20
KC 69 - Darfield Way	83%	83%	55.37	45.33	39.19	Tube Missing	Tube Missing	36.25	33.55	35.71	41.05	38.13	44.96	40.38	40.99	48.37
KC 47 - Sion Manning School (avg)	97%	97%	47.47	32.28	25.97	21.13	23.14	22.81	19.44	29.42	32.79	26.08	35.26	32.31	29.01	34.19

Site ID	Valid data capture for monitoring period % [a]	Valid data capture 2017 % [b]	Annual Mean NO$_2$												Annual mean – raw data [c]	Annual mean – bias adjusted [c]
			Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec		
KC 54 - Natural History Museum (avg)	89%	89%	**70.63**	**72.05**	**51.27**	**51.27**	**43.37**	**44.25**	**44.25**	**45.08**	**81.19**	**81.19**	**76.95**	**61.62**	**61.62**	**72.71**

Exceedance of the NO$_2$ annual mean AQO of 40 µg m^{-3} are shown in **bold**.

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

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

[c] Means should be "annualised" in accordance with LLAQM Technical Guidance, if valid data capture is less than 75%

G Diluted to read withing Gradko's UKAS calibration range

*below reporting limit

S spider in tube which may have affected result

CS Construction Site in Vicinity, result not conisdered in mean calculation

NC Outlier not considered for calculation of annual mean

Triplicate Tubes

KC 47 Sion Manning School

KC54 Natural History Museum

We are experiencing difficulty with data capture at some diffusion tube locations, with tubes repeatedly missing. Adjustments have been made to make the tubes more secure but tubes continue to be taken along with fixings. It looks likely that some tubes will need to be relocated.