2022 Air Quality Annual Status Report (ASR)

In fulfilment of Part IV of the Environment Act 1995

Local Air Quality Management

Date: December 2022 (January 2023 Updates)

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Report Reference Number	HBC/ASR/2022
Date	January 2023

Local Responsibilities and Commitment

This ASR update was prepared by the Environmental Health Department of Hertsmere Borough Council with the support and agreement of the following officers and departments:

Craig Gent (Senior Scientific Officer) – Environmental Health

This ASR has been approved by:

Paul Sawyer: Chief Environmental Health Officer

If you have any comments on this ASR please send them to Craig Gent at:

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Introduction

Hertsmere Borough Council submitted its 2022 ASR in December 2022, accompanied by an Excel Diffusion Tube Data Processing Tool and Diffusion Tube Data Entry System (DTES) for the 2022 ASR reporting year.

Following the submission of the 2022 ASR Hertsmere Borough Council received its Annual Status Report Appraisal Report, which recommended the inclusion of the following prior to further publication of the report;

- Monthly monitoring results for 2019 & 2020
- Evidence for national and local bias adjustment factor calculations for 2019 & 2020
- Distance corrected concentrations for 2019 and 2020

The information/data included within this update should therefore be read in conjunction with Hertsmere Borough Council's 2022 ASR main report.

Appendix B (1): Full Monthly Diffusion Tube Results for 2019 & 2020

Table B.1A– NO_2 2019 Diffusion Tube Results (µg/m^3)

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (1.04)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
HM39	519418	196681	62.7	54.5	50.6	37.8	36.9	36.1	38.2	42.7	43.5	42.1	53.4	44.1	**45.2**	**47.0**	35.5	
HM40	519281	196779	31.8	37.9	23.2	26.6	17.8	17.1	16.9	18.5	20.3	24.8	35.6	28.2	24.9	25.9	N.A.	
HM41	519022	196612	43.7	39.7	35.3	33.3	30.3	26.4	29.0	N/A	30.7	33.7	38.8	37.8	34.4	35.8	N.A.	
HM45/HM46/ HM47	520156	197364	27.3	30.3	18.6	17.8	13.9	N/A	14.2	15.7	17.6	21.9	27.9	23.4	20.8	21.6	N.A.	
HM48	517846	195346	48.0	48.5	42.7	38.0	32.4	32.7	N/A	32.0	37.4	33.9	43.4	37.3	38.8	**40.3**	33.9	
HM49	517861	195226	61.8	53.3	46.5	44.8	44.0	41.1	40.6	45.5	50.5	45.3	55.9	45.4	**47.9**	**49.8**	37.4	
HM50	517802	195249	57.0	68.4	48.7	46.4	49.4	44.0	51.1	48.6	49.4	49.7	46.5	47.6	**50.6**	**52.6**	36.4	
HM52	517744	195247	49.3	51.0	36.5	34.2	26.5	32.5	30.9	35.9	37.7	30.9	48.0	40.5	37.8	39.3	35.8	
HM53	515581	195094	28.9	30.3	18.6	20.1	14.8	15.1	14.5	12.9	15.7	22.0	33.5	25.3	21.0	21.8	N.A.	
HM54	514596	194396	37.8	37.3	26.9	35.3	19.8	19.8	19.5	18.1	23.7	21.7	41.5	29.5	27.6	28.7	N.A.	
HM55	512770	197834	33.8	30.6	19.8	22.9	18.8	16.6	17.4	17.0	21.8	20.5	30.5	24.6	22.9	23.8	N.A.	
HM57	513517	197819	66.7	60.3	45.1	25.9	43.0	41.2	46.6	47.6	40.6	N/A	N/A	45.4	**46.2**	**48.1**	33.2	
HM58	513966	197615	36.2	36.4	28.8	21.0	21.3	19.7	23.1	21.8	26.8	23.8	34.7	31.5	27.1	28.2	N.A.	
HM59	516570	200159	26.3	28.3	17.9	15.7	13.9	12.2	13.5	10.0	16.4	20.9	23.6	23.7	18.5	19.3	N.A.	
HM60	518586	202939	42.9	37.2	31.7	23.6	25.4	21.4	23.2	21.8	21.9	24.6	32.4	23.6	27.5	28.6	N.A.	
HM61	522037	200670	53.2	63.7	41.9	29.2	36.6	30.9	42.7	45.8	39.7	42.0	47.8	50.1	**43.6**	**45.4**	39.0	
HM62	524943	201153	57.0	51.3	36.2	38.0	38.2	36.1	38.1	31.9	37.6	39.3	48.2	41.5	**41.1**	**42.8**	31.9	
HM63	526079	200026	45.2	57.4	32.8	38.1	30.6	33.7	31.8	33.3	30.9	40.2	41.8	43.2	38.2	39.8	34.3	
HM64	526208	201454	59.4	68.1	55.4	34.1	52.6	46.5	46.7	46.7	42.3	45.6	54.8	52.1	**50.3**	**52.4**	31.4	
HM65	526252	201597	71.5	63.3	50.8	34.9	48.9	39.7	39.3	42.5	34.6	48.2	49.8	55.1	**48.2**	**50.1**	39.0	
HM66	526245	201458	64.0	58.9	42.3	26.1	34.2	30.9	37.1	35.7	30.6	51.7	47.9	50.2	**42.5**	**44.2**	36.5	
HM67	526211	201402	46.7	51.3	31.7	31.6	32.1	28.8	34.3	30.3	29.4	32.7	44.8	33.5	35.6	37.0	36.7	
HM69	526034	200832	69.2	73.2	54.9	43.6	48.9	47.7	48.8	41.6	43.4	49.5	56.9	56.0	**52.8**	**54.9**	**40.1**	
HM70	526402	200457	46.3	44.3	27.8	24.1	25.8	26.1	29.4	29.5	32.9	28.5	41.8	42.2	33.2	34.6	N.A.	
HM71	516291	200035	N/A	52.8	48.8	46.6	46.1	44.7	41.7	39.4	40.9	39.7	47.2	52.8	**45.5**	**47.3**	37.6	
HM74	516456	199624	40.4	38.9	30.0	35.4	28.8	30.4	27.7	23.6	27.9	30.9	37.8	31.1	31.9	33.2	N.A.	
HM79/HM80/ HM81	524988	201118	50.0	54.1	40.8	38.9	37.9	32.5	29.5	30.1	33.1	37.8	49.4	39.9	39.5	**41.1**	29.7	
HM82/HM83/ HM84	524922	201088	52.2	48.1	30.9	30.8	28.1	26.8	37.3	26.2	31.3	32.8	41.4	38.8	35.4	36.8	26.6	
HM85	518592	200948	31.9	34.7	24.3	20.2	17.3	15.9	15.1	15.4	20.8	22.3	35.4	29.4	23.5	24.5	N.A.	
HM86	522970	199959	56.4	60.9	51.2	33.5	34.5	23.9	45.6	45.5	39.0	41.9	47.0	53.7	**44.4**	**46.2**	32.5	
HM93	524573	200633	34.4	N/A	25.7	23.7	21.5	21.8	23.1	25.2	24.2	30.7	37.9	37.0	27.7	28.8	N.A.	
HM99/HM100 /HM101	513209	195257	47.8	49.6	N/A	39.8	N/A	33.2	33.7	30.9	35.0	37.4	45.3	35.4	38.8	40.4	36.9	
HM102	516385	199761	65.5	65.1	45.6	39.0	41.8	44.8	44.7	41.0	40.2	38.0	49.9	47.7	**46.9**	**48.8**	35.7	
HM105	520738	195271	38.1	40.2	24.9	31.4	23.1	22.7	21.1	20.3	25.9	25.1	11.3	32.1	26.3	27.4	N.A.	

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (1.04)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
HM108/HM109/HM110	513419	197727	63.5	69.2	54.6	57.1	47.4	48.2	43.5	46.4	41.3	46.9	55.8	49.1	**51.9**	**54.0**	30.8	
HM111	521980	200567	33.4	38.5	19.0	33.3	21.7	25.5	21.9	17.6	23.0	27.7	43.5	26.7	27.6	28.7	N.A.	
HM114	526164	201363	49.9	44.0	32.6	32.3	30.9	29.4	31.0	27.2	30.6	32.8	46.5	34.3	35.1	36.5	29.3	
HM117/HM118/HM119	513101	195286	49.8	42.9	40.6	N/A	30.5	28.6	30.0	25.5	33.5	36.0	46.6	35.4	36.3	37.8	32.2	
HM120/HM121/HM122	520181	197150	36.6	44.2	28.9	22.3	18.9	19.7	21.3	24.1	27.2	28.5	35.9	33.4	28.4	29.6	N.A.	
HM123/HM124/HM125	520263	197130	53.8	51.0	45.4	38.2	33.8	33.4	35.3	40.1	41.5	38.5	51.9	39.5	**41.9**	**43.5**	27.0	
HM126	517903	195552	46.2	45.3	36.5	25.3	28.5	28.3	30.2	31.0	32.4	33.8	43.0	36.4	34.7	36.1	27.3	
HM129	517907	195864	42.7	46.7	32.4	29.9	37.3	31.6	28.1	35.8	34.6	30.5	37.8	32.4	35.0	36.4	29.4	
HM132	516520	199450	36.4	36.2	26.0	32.3	26.3	N/A	22.8	18.6	25.1	24.6	36.9	26.1	28.3	29.4	N.A.	
HM135	513755	197599	36.5	44.3	37.0	36.9	25.2	27.3	29.1	35.3	27.6	28.9	41.2	38.3	34.0	35.3	N.A.	
HM136	519802	197597	40.0	43.3	28.8	26.3	24.6	24.2	21.2	N/A	31.1	34.7	40.2	32.2	31.5	32.8	N.A.	
HM137	519706	197041	N/A	40.9	32.0	N/A	24.7	N/A	23.8	26.0	30.2	29.2	41.2	34.1	31.3	32.6	N.A.	
HM138	519644	196865	43.3	44.6	32.5	32.1	30.1	28.2	28.4	28.9	34.0	32.7	47.0	36.2	34.8	36.2	30.6	
HM139	519589	196794	44.2	51.3	39.7	40.2	31.1	36.6	33.1	36.4	36.7	32.0	45.5	36.9	38.6	**40.2**	34.4	
HM140	519308	196574	58.1	63.5	47.6	42.1	36.0	46.4	40.0	N/A	41.9	41.3	55.8	41.4	**46.7**	**48.6**	**40.5**	
HM141	519213	196495	52.8	54.5	40.6	38.7	38.9	38.7	37.3	N/A	43.3	42.4	48.3	41.2	**43.3**	**45.1**	35.1	
HM142	513587	197872	48.5	45.9	34.2	23.9	27.7	24.0	31.0	27.4	33.0	30.8	40.5	38.9	33.8	35.2	N.A.	
HM143	516229	200201	56.4	66.5	56.4	47.0	48.1	47.0	45.5	43.8	47.8	46.0	58.8	39.6	**50.2**	**52.3**	36.5	
HM144	526210	201753	39.0	47.9	35.2	28.3	27.3	25.9	27.1	28.2	30.1	34.6	41.3	38.3	33.6	34.9	N.A.	
HM145	526409	201715	61.7	52.5	38.0	37.3	20.4	33.9	35.3	32.0	33.5	38.1	52.3	45.7	**40.1**	**41.7**	27.9	
HM146	518991	200401	35.9	43.1	27.3	24.9	23.5	24.3	25.8	24.4	24.4	29.3	41.1	33.8	29.8	31.0	N.A.	
HM147	518991	200401	40.6	43.0	25.1	22.6	23.6	23.3	26.9	23.3	26.3	30.2	36.4	31.6	29.4	30.6	N.A.	

☒ **All erroneous data has been removed from the NO_2 diffusion tube dataset presented in Table B.1A.**

☐ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG16.**

☒ **Local bias adjustment factor used.**

☐ **National bias adjustment factor used.**

☒ **Where applicable, data has been distance corrected for relevant exposure in the final column.**

☒ **Hertsmere Borough Council confirm that all 2019, 2020 & 2021 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.**

Notes:

Exceedances of the NO_2 annual mean objective of 40µg/m^3 are shown in **bold**.

NO_2 annual means exceeding 60µg/m^3, indicating a potential exceedance of the NO_2 1-hour mean objective are shown in **bold and underlined**.

See Appendix C for details on bias adjustment and annualisation.

Table B.2A– NO_2 2020 Diffusion Tube Results (µg/m^3)

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.92)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
HM39	519418	196681	60.1	53.4	43.0	33.0	30.2	28.0	34.8	35.4	47.4	40.7	50.8	43.0	**41.6**	38.3	29.9	
HM40	519281	196779	31.4	21.8	21.3	18.2	11.3	14.3	10.1	16.2	18.1	15.9	32.6	24.8	19.7	18.1	N.A.	
HM41	519022	196612	38.8	29.9	N/A	N/A	23.4	23.0	23.0	28.1	30.2	28.1	40.2	31.7	29.6	27.3	N.A.	
HM45/HM46/HM47	520156	197364	25.6	17.4	15.8	12.7	8.9	10.3	8.8	12.2	14.8	16.1	25.0	23.3	15.9	14.6	N.A.	
HM48	517846	195346	44.0	32.7	31.1	28.4	24.1	27.6	20.8	29.3	36.0	31.4	42.5	37.8	32.2	29.6	N.A.	
HM49	517861	195226	53.2	42.9	N/A	31.0	29.8	34.1	29.1	38.6	43.5	37.7	46.9	38.2	38.6	35.5	N.A.	
HM50	517802	195249	63.2	49.4	40.0	27.7	33.5	38.9	31.2	43.7	46.2	44.7	54.9	48.3	**43.5**	**40.0**	29.2	
HM52	517744	195247	44.6	34.6	29.3	23.9	21.2	26.3	22.0	30.2	33.0		43.8	31.5	30.9	28.5	N.A.	
HM53	515581	195094	26.1	17.8	16.2	N/A	9.8	11.2	8.6	13.8	16.6	15.7	27.3	20.8	16.7	15.4	N.A.	
HM54	514596	194396	27.7	22.8	22.5	22.1	15.3	16.7	12.5	20.1	21.8	19.7	28.8	25.7	21.3	19.6	N.A.	
HM55	512770	197834	24.0	17.4	19.2	16.9	14.2	13.0	11.2	17.1	18.0	16.1	23.5	20.6	17.6	16.2	N.A.	
HM57	513517	197819	48.8	45.5	36.9	24.1	26.5	34.5	29.5	32.2	36.1	40.4	45.6	36.7	36.4	33.5	N.A.	
HM58	513966	197615	35.6	26.2	20.9	14.7	11.8	15.3	15.4	18.8	25.1	28.8	32.9	26.2	22.6	20.8	N.A.	
HM59	516570	200159	19.5	17.9	14.3	11.3	9.1	N/A	9.2	12.1	15.1	13.9	22.9	19.8	15.0	13.8	N.A.	
HM60	518586	202939	31.3	28.4	23.5	16.7	16.8	15.1	17.2	18.6	23.5	21.0	29.5	21.6	21.9	20.2	N.A.	
HM61	522037	200670	51.8	40.9	32.4	21.1	21.5	28.7	26.6	34.4	37.1	35.7	49.7	39.6	35.0	32.2	N.A.	
HM62	524943	201153	42.8	37.0	34.2	22.7	25.2	28.1	20.9	33.1	28.2	26.7	42.8	38.0	31.6	29.1	N.A.	
HM63	526079	200026	40.8	31.7	29.6	24.4	17.9	29.4	18.0	29.2	28.4	28.6	39.4	31.3	29.0	26.7	N.A.	
HM64	526208	201454	59.9	48.2	40.8	23.8	34.0	25.2	37.2	30.1	30.3	47.6	52.3	43.2	39.4	36.2	24.3	
HM65	526252	201597	64.2	50.6	43.9	24.5	27.8	34.6	34.1	40.0	37.5	44.1	49.8	29.1	**40.0**	36.8	29.8	
HM66	526245	201458	44.4	40.7	32.4	20.3	22.8	25.7	28.4	28.4	51.7	35.7	42.2	35.5	34.0	31.3	N.A.	
HM67	526211	201402	42.2	30.9	27.9	21.0	22.4	35.2	20.7	38.6	43.1	31.2	38.0	34.3	32.1	29.5	N.A.	
HM69	526034	200832	53.6	49.8	44.6	33.3	44.1	39.9	32.4	43.7	47.3	44.4	52.1	45.7	**44.2**	**40.7**	31.9	
HM70	526402	200457	37.1	31.2	28.1	18.3	17.2	22.2	16.2	24.1	26.4	26.8	34.7	28.6	25.9	23.8	N.A.	
HM71	516291	200035	46.9	40.8	37.3	27.0	35.1	32.5	27.8	32.1	35.6	30.5	39.0	39.3	35.3	32.5	N.A.	
HM74	516456	199624	35.5	26.2	26.2	24.6	21.5	N/A	15.7	26.2	26.6	25.3	33.6	32.9	26.7	24.6	N.A.	
HM79/HM80/HM81	524988	201118	40.6	34.5	34.0	24.9	25.1	24.6	18.4	28.9	34.6	25.9	35.5	29.5	29.7	27.3	N.A.	
HM82/HM83/HM84	524922	201088	38.6	30.9	27.6	21.2	19.8	22.5	22.4	24.7	30.0	30.1	36.4	33.0	28.1	25.8	N.A.	
HM85	518592	200948	29.9	22.9	18.7	15.0	11.0	12.1	9.8	14.7	17.3	18.7	31.9	24.9	18.9	17.4	N.A.	
HM86	522970	199959	52.5	50.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-	-	N.A.	
HM93	524573	200633	37.0	29.4	25.5	15.9	12.9	17.9	13.4	18.9	22.8	23.8	33.2	27.9	23.2	21.3	N.A.	
HM99/HM100/HM101	513209	195257	39.5	36.2	34.1	27.2	27.0	28.2	25.8	33.1	39.1	31.7	43.2	33.7	33.2	30.6	N.A.	
HM102	516385	199761	52.2	42.7	37.0	26.3	29.5	N/A	N/A	35.5	40.1	38.8	43.7	37.5	38.3	35.3	N.A.	
HM105	520738	195271	34.0	23.8	24.1	20.4	16.5	17.2	12.6	20.9	23.1	23.6	36.3	28.9	23.4	21.6	N.A.	
HM108/HM109/HM110	513419	197727	59.8	49.8	46.1	35.5	39.4	40.4	29.3	40.2	45.1	41.4	49.5	43.7	**43.3**	39.9	28.9	
HM111	521980	200567	25.1	17.7	21.6	21.5	18.2	17.5	11.2	21.4	20.2	20.2	27.7	25.5	20.7	19.0	N.A.	
HM114	526164	201363	35.6	29.0	31.9	24.3	22.5	24.2	21.2	29.8	31.6	28.7	38.9	37.2	29.6	27.2	N.A.	

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HM117/HM118/ HM119	513101	195286	43.0	31.4	28.9	24.4	23.5	23.3	22.2	27.9	35.9	28.4	37.2	33.0	29.9	27.5	N.A.	
HM120/HM121/ HM122	520181	197150	40.5	31.0	24.4	16.6	13.0	16.3	13.5	18.5	23.0	34.4	36.7	28.1	24.7	22.7	N.A.	
HM123/HM124/ HM125	520263	197130	50.8	39.9	33.8	23.3	25.5	28.7	29.8	33.4	38.9	22.8	48.0	36.3	34.3	31.5	N.A.	
HM126	517903	195552	42.8	30.5	26.2	18.0	21.0	24.2	21.4	30.3	31.0	30.3	37.5	33.3	28.9	26.6	N.A.	
HM129	517907	195864	42.4	31.4	24.5	21.3	20.8	26.8	20.7	31.1	30.4	25.1	39.9	33.2	29.0	26.6	N.A.	
HM132	516520	199450	29.4	N/A	24.5	23.7	17.9	9.7	15.5	22.1	25.1	21.5	31.7	25.8	22.4	20.6	N.A.	
HM135	513755	197599	40.0	37.2	27.7	17.5	17.5	23.1	20.6	24.7	28.5	28.2	37.5	29.8	27.7	25.5	N.A.	
HM136	519802	197597	N/A	N/A	27.5	19.9	15.6	19.8	16.6	23.2	26.5	26.3	37.4	34.7	24.7	22.8	N.A.	
HM137	519706	197041	42.5	27.3	26.5	20.8	14.7	20.1	14.7	22.3	25.0	20.1	39.0	31.1	25.3	23.3	N.A.	
HM138	519644	196865	44.3	N/A	27.4	23.3	20.6	20.3	N/A	25.6	31.3	30.6	41.6	32.8	29.8	27.4	N.A.	
HM139	519589	196794	49.4	38.6	35.6	32.8	28.2	29.3	21.7	31.8	35.3	25.5	46.7	35.5	34.2	31.5	N.A.	
HM140	519308	196574	53.7	43.1	40.2	34.5	34.3	32.5	27.2	38.2	43.3	36.7	53.4	42.6	**40.0**	36.8	31.6	
HM141	519213	196495	51.4	42.7	38.5	28.1	29.2	30.9	25.5	35.1	39.3	34.0	46.5	40.5	36.8	33.9	N.A.	
HM142	513587	197872	40.8	32.8	26.9	18.4	17.5	21.1	19.1	21.9	28.1	22.6	32.4	30.9	26.0	24.0	N.A.	
HM143	516229	200201	60.0	45.0	40.2	29.2	30.5	36.5	31.0	36.0	38.5	28.3	47.2	42.4	38.7	35.6	N.A.	
HM144	526210	201753	37.1	31.1	24.6	17.1	16.8	20.8	18.7	24.8	26.8	23.3	29.2	31.0	25.1	23.1	N.A.	
HM145	526409	201715	39.9	39.1	32.9	24.9	26.0	26.6	21.9	26.2	31.9	27.5	36.4	N/A	30.3	27.9	N.A.	
HM146	518991	200401	35.7	27.1	23.3	17.5	15.7	20.1	17.0	22.3	26.1	24.8	35.7	28.4	24.5	22.5	N.A.	
HM147	518991	200401	35.3	28.0	23.9	18.0	16.8	19.8	16.8	23.0	24.5	23.0	29.6	27.3	23.8	21.9	N.A.	

☒ **All erroneous data has been removed from the NO_2 diffusion tube dataset presented in Table B.2A.**

☐ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG16.**

☒ **Local bias adjustment factor used.**

☐ **National bias adjustment factor used.**

☒ **Where applicable, data has been distance corrected for relevant exposure in the final column.**

☒ **Hertsmere Borough Council confirm that all 2019, 2020 & 2021 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.**

Notes:

Exceedances of the NO_2 annual mean objective of 40µg/m^3 are shown in **bold**.

NO_2 annual means exceeding 60µg/m^3, indicating a potential exceedance of the NO_2 1-hour mean objective are shown in **bold and underlined**.

See Appendix C for details on bias adjustment and annualisation.

Appendix C1: Supporting Technical Information / Air Quality Monitoring Data QA/QC

Diffusion Tube Bias Adjustment Factors for 2019 & 2020

2019 & 2020 National Bias Adjustment Factors

Local Bias Adjustment Factors of 1.04 and 0.92 for the respective 2019 and 2020 monitoring years, were calculated using the Diffusion Tube Data Processing Tool. Details of the Data entry and Local Bias Adjustment Outputs within the Diffusion Tube Data Processing Tool are included below. A summary of bias adjustment factors used by Hertsmere Borough Council over the past five years, is also presented in Table C.1. within the 2022 ASR Main Report.

2019 Local Bias Adjustment Factor

Period	NO_2 Period Mean ($\mu g/m^3$)			Triplicate Mean	Standard Deviation	Coefficient of Variation (CV)	95% CI of Mean	Data Quality Check
	Tube 1	Tube 2	Tube 3					
1	28.6	24.2	29.0	27.3	2.7	10%	6.6	Good
2	31.6	28.2	31.1	30.3	1.8	6%	4.5	Good
3	18.9	18.6	18.2	18.6	0.3	2%	0.8	Good
4	18.4	17.7	17.2	17.8	0.6	3%	1.5	Good
5	15.0	13.8	12.8	13.9	1.1	8%	2.7	Good
6	N/A	N/A	N/A					
7	14.1	14.1	14.5	14.2	0.2	2%	0.6	Good
8	15.6	16.0	15.5	15.7	0.2	2%	0.6	Good
9	16.8	18.1	17.9	17.6	0.7	4%	1.7	Good
10	21.6	22.9	21.3	21.9	0.9	4%	2.1	Good
11	28.1	28.8	26.7	27.9	1.1	4%	2.7	Good
12	20.9	23.7	25.6	23.4	2.4	10%	5.9	Good
								Good Overall Precision

ii) Enter co-located continuous monitor hourly monitoring data

Start Date	09/01/2019
Start Time	11:00

Date & Time	NO_2 Hourly Concentrations ($\mu g/m^3$)
09/01/19 11:00	20.09905
09/01/19 12:00	16.89381
09/01/19 13:00	16.76102
09/01/19 14:00	10.57838
09/01/19 15:00	11.57152
09/01/19 16:00	15.4865
09/01/19 17:00	20.5545
09/01/19 18:00	29.03526
09/01/19 19:00	35.60611
09/01/19 20:00	36.6277
09/01/19 21:00	36.87724
09/01/19 22:00	31.44949
09/01/19 23:00	26.08746

Period	Period Mean	Data Capture (%)	Data Quality Check
1	30.2	95.8%	Good
2	33.2	93.5%	Good
3	18.8	95.8%	Good
4	20.3	95.8%	Good
5	14.9	95.8%	Good
6	13.1	95.8%	Good
7	13.1	95.8%	Good
8	14.3	95.5%	Good
9	17.1	95.5%	Good
10	21.9	100.0%	Good
11	29.0	100.0%	Good
12	25.0	99.0%	Good
			Good Overall Data Capture

	STEP 3a Local Bias Adjustment Input 1
Periods used to calculate bias	11
Bias Adjustment Factor A	1.04 (0.99 - 1.1)
Diffusion Tube Bias B	-4% (-9% - 1%)
Diffusion Tube Mean (µg/m^3)	20.8
Mean CV (Precision)	4.9%
Automatic Mean (µg/m^3)	21.6
Data Capture	97%
Adjusted Tube Mean (µg/m^3)	22 (21 - 23)

Overall Diffusion Tube Precision	Good Overall Precision
Overall Continuous Monitor Data Capture	Good Overall Data Capture

Local Bias Adjustment Factor	1.04

2020 Local Bias Adjustment Factor

Period	NO_2 Period Mean (µg/m^3)			Triplicate Mean	Standard Deviation	Coefficient of Variation (CV)	95% CI of Mean	Data Quality Check
	Tube 1	Tube 2	Tube 3					
1	25.8	24.9	26.2	25.6	0.7	3%	1.7	Good
2	18.1	16.4	17.6	17.4	0.9	5%	2.1	Good
3	16.0	15.6	15.9	15.8	0.2	1%	0.5	Good
4	12.3	12.6	13.0	12.6	0.4	3%	0.9	Good
5	N.A.	N.A.	N.A.					
6	10.5	9.9	10.6	10.3	0.4	3%	0.9	Good
7	9.1	8.3	9.0	8.8	0.4	5%	1.1	Good
8	12.3	12.2	12.2	12.2	0.0	0%	0.1	Good
9	14.8	14.6	15.0	14.8	0.2	1%	0.5	Good
10	16.2	16.4	15.6	16.1	0.4	2%	1.0	Good
11	24.8	25.9	24.2	25.0	0.8	3%	2.1	Good
12	23.1	23.3	23.4	23.3	0.1	1%	0.4	Good
								Good Overall Precision

ii) Enter co-located continuous monitor hourly monitoring data

Start Date	*08/01/2020*
Start Time	*13:00*

Date & Time	NO_2 Hourly Concentrations (µg/m^3)
08/01/20 13:00	15.50313
08/01/20 14:00	14.7088
08/01/20 15:00	19.84749
08/01/20 16:00	31.68875
08/01/20 17:00	49.22156
08/01/20 18:00	59.88125
08/01/20 19:00	68.94116
08/01/20 20:00	65.48508
08/01/20 21:00	60.14772
08/01/20 22:00	60.39735
08/01/20 23:00	42.99425
09/01/20 00:00	17.72342
09/01/20 01:00	14.11233

Period	Period Mean	Data Capture (%)	Data Quality Check
1	24.0	95.7%	Good
2	15.3	94.6%	Good
3	13.7	95.8%	Good
4	11.9	95.7%	Good
5	8.7	95.7%	Good
6	9.7	95.5%	Good
7	7.4	95.2%	Good
8	12.6	64.1%	Poor Data Capture
9	13.4	91.4%	Good
10	14.9	100.0%	Good
11	25.0	100.0%	Good
12	21.2	99.2%	Good
			Good Overall Data Capture

	STEP 3a Local Bias Adjustment Input 1
Periods used to calculate bias	10
Bias Adjustment Factor A	0.92 (0.89 - 0.96)
Diffusion Tube Bias B	8% (5% - 12%)
Diffusion Tube Mean (µg/m^3)	17.0
Mean CV (Precision)	2.8%
Automatic Mean (µg/m^3)	15.7
Data Capture	96%
Adjusted Tube Mean (µg/m^3)	16 (15 - 16)

Overall Diffusion Tube Precision	Good Overall Precision
Overall Continuous Monitor Data Capture	Good Overall Data Capture

Local Bias Adjustment Factor	**0.92**

NO_2 Fall-off with Distance from the Road for 2019 & 2020

Distance correction should be considered at any monitoring site where the annual mean concentration is greater than 36µg/m3 and the monitoring site is not located at a point of relevant exposure (taking the limitations of the calculator into account). Fall off with Distance Inputs and Outputs within the Diffusion Tube Data Processing Tool, for the 2019 and 2020 monitoring years are included below.

2019 Fall off with Distance Calculations

Diffusion Tube ID	Distance (m)		NO_2 Annual Mean Concentration (µg/m^3)			Comment
	Monitoring Site to Kerb	Receptor to Kerb	Bias Adjusted	Background	Predicted at Receptor	
HM39	1.3	8.3	47.0	17.8	35.5	
HM48	1.9	6.3	40.3	17.2	33.9	
HM49	1.1	7.0	49.8	17.2	*37.4*	*Predicted concentration at Receptor within 10% the AQS objective.*
HM50	1.2	10.7	52.6	17.2	*36.4*	*Predicted concentration at Receptor within 10% the AQS objective.*
HM52	1.8	3.6	39.3	17.2	35.8	
HM57	1.8	11.0	48.1	12.2	33.2	
HM61	14.6	29.2	45.4	24.5	*39.0*	*Predicted concentration at Receptor within 10% the AQS objective. Warning: your monitor is more than 10m further from the kerb than your receptor - treat result with caution. Warning: your receptor is more than 20m further from the kerb than your monitor - treat result with caution.*
HM62	3.1	15.6	42.8	17.0	31.9	
HM63	29.1	48.3	39.8	22.7	34.3	*Warning: your monitor is more than 10m further from the kerb than your receptor - treat result with caution. Warning: your receptor is more than 20m further from the kerb than your monitor - treat result with caution.*
HM64	2.1	25.4	52.4	16.9	31.4	*Warning: your receptor is more than 20m further from the kerb than your monitor - treat result with caution.*
HM65	2.8	10.5	50.1	16.9	*39.0*	*Predicted concentration at Receptor within 10% the AQS objective.*
HM66	3.0	8.9	44.2	16.9	*36.5*	*Predicted concentration at Receptor within 10% the AQS objective.*
HM67	11.3	11.8	37.0	16.9	*36.7*	*Predicted concentration at Receptor within 10% the AQS objective. Warning: your monitor is more than 10m further from the kerb than your receptor - treat result with caution.*
HM69	3.1	18.1	54.9	22.7	**40.1**	*Predicted concentration at Receptor above AQS objective.*
HM71	1.5	5.8	47.3	14.4	*37.6*	*Predicted concentration at Receptor within 10% the AQS objective.*
HM79/HM80/ HM81	1.7	13.9	41.1	17.0	29.7	

HM82/HM83/HM84	0.6	10.2	36.8	17.0	26.6	
HM86	10.5	43.3	46.2	20.9	32.5	*Warning: your monitor is more than 10m further from the kerb than your receptor - treat result with caution. Warning: your receptor is more than 20m further from the kerb than your monitor - treat result with caution.*
HM99/HM100/HM101	2.4	4.3	40.4	15.9	*36.9*	*Predicted concentration at Receptor within 10% the AQS objective.*
HM102	0.5	4.5	48.8	15.0	35.7	
HM108/HM109/HM110	0.5	11.6	54.0	12.2	30.8	
HM114	9.5	25.8	36.5	16.9	29.3	*Warning: your receptor is more than 20m further from the kerb than your monitor - treat result with caution.*
HM117/HM118/HM119	2.3	6.6	37.8	15.9	32.2	
HM123/HM124/HM125	3.6	38.1	43.5	17.8	27.0	*Warning: your receptor is more than 20m further from the kerb than your monitor - treat result with caution.*
HM126	2.4	16.2	36.1	17.2	27.3	
HM129	1.5	7.8	36.4	17.2	29.4	
HM138	0.8	3.9	36.2	17.8	30.6	
HM139	2.0	6.0	40.2	17.8	34.4	
HM140	0.9	3.4	48.6	17.8	**40.5**	*Predicted concentration at Receptor above AQS objective.*
HM141	0.8	5.3	45.1	17.8	35.1	
HM143	1.4	9.6	52.3	14.4	*36.5*	*Predicted concentration at Receptor within 10% the AQS objective.*
HM145	1.4	18.4	41.7	16.9	27.9	

2020 Fall off with Distance Calculations

Diffusion Tube ID	Distance (m)		NO_2 Annual Mean Concentration ($\mu g/m^3$)			Comment
	Monitoring Site to Kerb	Receptor to Kerb	Bias Adjusted	Background	Predicted at Receptor	
HM39	1.3	8.3	38.3	17.0	29.9	
HM50	1.2	10.7	40.0	16.4	29.2	
HM64	2.1	25.4	36.2	16.1	24.3	*Warning: your receptor is more than 20m further from the kerb than your monitor - treat result with caution.*
HM65	2.8	10.5	36.8	16.1	29.8	
HM69	3.1	18.1	40.7	21.5	31.9	
HM108/HM109/HM110	0.5	11.6	39.9	20.2	28.9	
HM140	0.9	3.4	36.8	17.0	31.6	