

OVG Manchester:

Appendix 6.6 – Operational Modelling Results 2023

OVG Manchester- EIA Chapter 6 Air Quality

Appendix 6.6 Operational Modelling Results 2023

0042841

16 January 2020

Revision 00

BRA-BHE-XX-XX-RP-YM-0608

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Revision	Description	Issued by	Date	Checked
01	Final	CR	18/03/2020	18/03/2020

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Table 1- Long Term NO₂ Operational Modelling Results

Receptor	Height (m)	Baseline (µg/m ³)	Do Nothing (µg/m ³)	Do Something (µg/m ³)			% AQAL in Do Something	% change relative to AQAL	Impact Descriptor
				Traffic Emissions	Combustion Plant Contribution	Total concentration			
Club Shop	1.5	24.3	23.4	23.4	0.1	23.5	59	0	Negligible
Phillips Park	1.5	30.8	23.7	23.7	0.4	24.1	60	1	Negligible
Regional Arena	1.5	24.1	19.5	19.6	0.1	19.6	49	0	Negligible
Tennis Centre	1.5	23.8	19.3	19.4	0.1	19.4	49	0	Negligible
r1	1.5	29.1	22.1	22.1	0.2	22.3	56	1	Negligible
r2	1.5	30.6	21.7	21.7	0.1	21.8	55	0	Negligible
r2a	3	30.2	25.0	25.1	0.1	25.3	63	1	Negligible
r2b	5	29.4	25.3	25.4	0.2	25.6	64	1	Negligible
r2c	7	28.5	24.8	25.0	0.2	25.1	63	1	Negligible

r2d	10	27.2	23.8	23.9	0.2	24.1	60	1	Negligible
r2e	12	26.5	22.8	22.9	0.2	23.1	58	1	Negligible
r2f	15	25.6	21.6	21.7	0.3	21.9	55	1	Negligible
r2g	18	25.0	21.0	21.1	0.3	21.4	54	1	Negligible
r2h	21	24.5	20.3	20.4	0.4	20.8	52	1	Negligible
r2i	24	24.2	19.9	19.9	0.5	20.4	51	1	Negligible
r2j	27	23.9	19.5	19.5	0.6	20.1	50	2	Negligible
r3	1.5	30.3	19.3	19.3	0.2	19.4	49	0	Negligible
r3a	3	30.0	19.1	19.1	0.2	19.2	48	0	Negligible
r3b	5	29.3	24.1	24.2	0.2	24.4	61	1	Negligible
r3c	7	28.5	23.8	24.0	0.2	24.1	60	1	Negligible
r3d	10	27.3	23.3	23.4	0.2	23.6	59	1	Negligible
r3e	12	26.6	22.6	22.7	0.2	23.0	57	1	Negligible
r3f	15	25.7	21.6	21.7	0.3	22.0	55	1	Negligible
r3g	18	25.0	21.1	21.1	0.3	21.5	54	1	Negligible
r3h	21	24.5	20.4	20.4	0.4	20.8	52	1	Negligible
r3i	24	24.2	19.9	19.9	0.5	20.4	51	1	Negligible

r3j	27	23.9	19.5	19.5	0.6	20.1	50	2	Negligible
r4	1.5	30.8	19.3	19.3	0.2	19.5	49	1	Negligible
r4a	3	30.5	19.1	19.1	0.2	19.3	48	1	Negligible
r4b	5	29.8	24.2	24.3	0.2	24.5	61	1	Negligible
r4c	7	29.0	23.9	24.1	0.2	24.3	61	1	Negligible
r4d	10	27.7	23.5	23.6	0.2	23.8	60	1	Negligible
r4e	12	26.9	22.9	23.0	0.2	23.2	58	1	Negligible
r4f	15	26.0	22.0	22.0	0.3	22.3	56	1	Negligible
r4g	18	25.2	21.4	21.5	0.3	21.7	54	1	Negligible
r4h	21	24.7	20.7	20.8	0.3	21.0	53	1	Negligible
r4i	24	24.4	20.2	20.2	0.3	20.5	51	1	Negligible
r4j	27	24.1	19.8	19.8	0.3	20.2	50	1	Negligible
r5	1.5	26.5	25.0	25.1	0.0	25.1	63	0	Negligible
r6	1.5	26.2	25.3	25.4	0.0	25.2	64	0	Negligible
r7	1.5	25.9	24.1	24.2	0.0	25.4	61	0	Negligible
r8	1.5	25.9	24.2	24.3	0.0	24.3	61	0	Negligible
r9	1.5	26.9	19.8	19.8	0.0	19.8	50	0	Negligible

r10	1.5	26.7	19.7	19.7	0.0	19.7	49	0	Negligible
r11	1.5	27.6	19.6	19.6	0.0	19.6	49	0	Negligible
r12	1.5	27.6	19.6	19.6	0.0	19.6	49	0	Negligible
r13	1.5	29.7	20.0	20.0	0.0	20.0	50	0	Negligible
r14	1.5	29.3	19.9	20.0	0.0	20.0	50	0	Negligible
r15	1.5	28.9	20.3	20.3	0.0	20.3	51	0	Negligible
r16	1.5	28.4	20.3	20.3	0.0	20.3	51	0	Negligible
r17	1.5	29.5	23.0	23.1	0.0	23.1	58	0	Negligible
r18	1.5	30.3	22.7	22.8	0.0	22.8	57	0	Negligible
r19	1.5	31.1	22.5	22.6	0.0	22.6	56	0	Negligible
r20	1.5	33.4	22.2	22.3	0.0	22.3	56	0	Negligible
r21	1.5	29.1	22.8	22.9	0.0	22.9	57	0	Negligible
r22	1.5	31.4	23.3	23.4	0.0	23.4	59	0	Negligible
r23	1.5	31.6	23.9	24.0	0.0	24.0	60	0	Negligible
r24	1.5	31.6	25.4	25.4	0.0	25.4	64	0	Negligible
r25	1.5	30.4	22.6	22.7	0.0	22.7	57	0	Negligible
r26	1.5	34.1	24.3	24.3	0.0	24.3	61	0	Negligible

r27	1.5	30.3	24.4	24.5	0.0	24.5	61	0	Negligible
r28	1.5	32.1	24.4	24.4	0.0	24.4	61	0	Negligible
r29	1.5	27.5	23.6	23.6	0.0	23.6	59	0	Negligible
r30	1.5	29.8	26.1	26.1	0.0	26.1	65	0	Negligible
r31	1.5	30.7	23.5	23.6	0.0	23.6	59	0	Negligible
r32	1.5	26.4	24.8	24.8	0.0	24.8	62	0	Negligible
r33	1.5	26.2	21.5	21.6	0.0	21.6	54	0	Negligible
r34	1.5	25.8	22.9	22.9	0.0	22.9	57	0	Negligible
r35	1.5	25.6	23.5	23.6	0.0	23.6	59	0	Negligible
r36	1.5	32.9	20.6	20.7	0.0	20.7	52	0	Negligible
r37	1.5	33.5	20.5	20.6	0.0	20.6	51	0	Negligible
r38	1.5	29.0	20.3	20.4	0.0	20.4	51	0	Negligible
r39	1.5	32.5	20.5	20.6	0.0	20.6	51	0	Negligible
r40	1.5	27.7	25.1	25.3	0.0	25.3	63	0	Negligible
r41	1.5	29.2	25.5	25.5	0.0	25.5	64	0	Negligible
r42	1.5	27.3	22.9	23.0	0.0	23.0	58	0	Negligible
r43	1.5	28.7	24.8	24.9	0.0	24.9	62	0	Negligible

r44	1.5	32.0	21.9	21.9	0.0	21.9	55	0	Negligible
r45	1.5	25.1	22.5	22.5	0.0	22.5	56	0	Negligible
r46	1.5	25.0	21.4	21.4	0.0	21.4	54	0	Negligible
r47	1.5	25.0	22.2	22.3	0.0	22.3	56	0	Negligible
r48	1.5	25.0	24.5	24.7	0.0	24.7	62	0	Negligible
r49	1.5	24.7	24.5	24.6	0.0	24.6	61	0	Negligible
r50	1.5	22.3	24.7	24.8	0.0	24.8	62	0	Negligible
r51	1.5	22.1	24.6	24.7	0.0	24.7	62	0	Negligible
r52	1.5	22.1	26.0	26.2	0.0	26.2	66	1	Negligible
r53	1.5	22.1	22.9	23.0	0.0	23.0	57	0	Negligible
r54	1.5	22.0	19.1	19.1	0.0	19.1	48	0	Negligible
r55	1.5	22.0	18.8	18.8	0.0	18.8	47	0	Negligible
r56	1.5	22.0	21.0	21.0	0.0	21.0	53	0	Negligible
r57	1.5	22.0	29.6	29.7	0.0	29.7	74	0	Negligible
r58	1.5	24.4	21.0	21.1	0.0	21.1	53	0	Negligible
r59	1.5	24.4	21.3	21.3	0.0	21.3	53	0	Negligible
r60	1.5	24.4	23.9	24.0	0.0	24.0	60	0	Negligible

r61	1.5	24.4	25.9	26.0	0.0	26.0	65	0	Negligible
r62	1.5	24.4	22.2	22.2	0.0	22.2	56	0	Negligible
r63	1.5	24.4	21.7	21.7	0.0	21.7	54	0	Negligible
r64	1.5	24.4	22.8	22.9	0.0	22.9	57	0	Negligible
r65	1.5	24.4	22.1	22.1	0.0	22.1	55	0	Negligible
r66	1.5	24.4	22.1	22.1	0.0	22.1	55	0	Negligible
r67	1.5	21.6	23.3	23.3	0.0	23.3	58	0	Negligible
r68	1.5	20.9	22.8	22.8	0.0	22.8	57	0	Negligible
r69	1.5	21.6	21.0	21.0	0.0	21.0	53	0	Negligible
r70	1.5	21.6	21.3	21.3	0.0	21.3	53	0	Negligible
r71	1.5	21.6	21.8	21.9	0.0	21.9	55	0	Negligible
r72	1.5	21.6	18.7	18.7	0.0	18.7	47	0	Negligible
r73	1.5	30.3	20.6	20.6	0.0	20.6	52	0	Negligible
r74	1.5	30.2	20.1	20.1	0.0	20.1	50	0	Negligible
r75	1.5	30.3	21.5	21.6	0.0	21.6	54	0	Negligible
r76	1.5	30.3	21.6	21.7	0.0	21.7	54	0	Negligible
r77	1.5	30.8	23.3	23.4	0.0	23.4	58	0	Negligible

r78	1.5	28.5	23.3	23.3	0.0	23.3	58	0	Negligible
r79	1.5	27.7	23.4	23.4	0.0	23.4	58	0	Negligible

Table 2- Short Term Modelling Results from operational energy centre emissions

Receptor	Height (m)	Boiler 99.79 th NO ₂ (µg/m ³)	Backup Generator 99.79 th NO ₂ (µg/m ³)	Total combustion plant 99.79 th NO ₂ (µg/m ³)	% of Short Term Air Quality Objective	Impact Descriptor
Club Shop	1.5	0.2	0.0	0.2	0%	Negligible
Phillips Park	1.5	1.2	8.1	9.3	5%	Negligible
Regional Arena	1.5	0.4	0.0	0.4	0%	Negligible
Tennis Centre	1.5	0.3	0.0	0.3	0%	Negligible
r1	1.5	0.5	3.0	3.6	2%	Negligible
r2	1.5	0.7	0.3	1.0	1%	Negligible
r2a	3	0.7	0.4	1.0	1%	Negligible
r2b	5	0.7	0.4	1.1	1%	Negligible
r2c	7	0.7	0.6	1.2	1%	Negligible
r2d	10	0.7	0.9	1.6	1%	Negligible
r2e	12	0.7	1.3	2.0	1%	Negligible
r2f	15	0.8	2.1	3.0	1%	Negligible

r2g	18	1.0	3.4	4.5	2%	Negligible
r2h	21	1.3	5.1	6.4	3%	Negligible
r2i	24	1.5	7.3	8.8	4%	Negligible
r2j	27	1.5	10.1	11.6	6%	Negligible
r3	1.5	0.6	0.1	0.6	0%	Negligible
r3a	3	0.6	0.1	0.7	0%	Negligible
r3b	5	0.6	0.1	0.7	0%	Negligible
r3c	7	0.6	0.1	0.7	0%	Negligible
r3d	10	0.6	0.1	0.7	0%	Negligible
r3e	12	0.7	0.1	0.8	0%	Negligible
r3f	15	0.7	0.1	0.9	0%	Negligible
r3g	18	0.9	0.2	1.1	1%	Negligible
r3h	21	1.0	0.4	1.4	1%	Negligible
r3i	24	1.1	0.6	1.7	1%	Negligible
r3j	27	1.1	0.9	2.0	1%	Negligible
r4	1.5	0.4	0.0	0.4	0%	Negligible
r4a	3	0.4	0.0	0.4	0%	Negligible

r4b	5	0.4	0.0	0.4	0%	Negligible
r4c	7	0.4	0.0	0.4	0%	Negligible
r4d	10	0.4	0.0	0.4	0%	Negligible
r4e	12	0.4	0.0	0.4	0%	Negligible
r4f	15	0.4	0.0	0.4	0%	Negligible
r4g	18	0.4	0.0	0.4	0%	Negligible
r4h	21	0.4	0.0	0.4	0%	Negligible
r4i	24	0.4	0.0	0.4	0%	Negligible
r4j	27	0.4	0.0	0.4	0%	Negligible

Table 3- PM₁₀ Operational Modelling Results

Receptor	Height (m)	Baseline (µg/m ³)	Do Nothing (µg/m ³)	Do Something (µg/m ³)	% AQAL in Do Something	% change relative to AQAL	Impact Descriptor	Estimated Short Term Exceedances Per Year (35 allowable)*
Club Shop	1.5	12.3	12.5	12.5	31	0	Negligible	1
Phillips Park	1.5	13.5	12.6	12.6	31	0	Negligible	0
Regional Arena	1.5	12.3	11.5	11.6	29	0	Negligible	1
Tennis Centre	1.5	12.2	11.5	11.5	29	0	Negligible	1
r1	1.5	12.8	12.2	12.2	30	0	Negligible	1
r2	1.5	13.4	12.0	12.0	30	0	Negligible	0
r2a	3	13.3	12.8	12.8	32	0	Negligible	0
r2b	5	13.2	13.2	13.2	33	0	Negligible	1
r2c	7	13.0	13.1	13.1	33	0	Negligible	1
r2d	10	12.8	12.9	12.9	32	0	Negligible	1
r2e	12	12.7	12.6	12.6	32	0	Negligible	1

r2f	15	12.5	12.3	12.4	31	0	Negligible	1
r2g	18	12.4	12.2	12.2	31	0	Negligible	1
r2h	21	12.3	12.0	12.0	30	0	Negligible	1
r2i	24	12.2	11.9	11.9	30	0	Negligible	1
r2j	27	12.2	11.8	11.8	30	0	Negligible	1
r3	1.5	13.4	11.8	11.8	29	0	Negligible	1
r3a	3	13.3	11.7	11.7	29	0	Negligible	1
r3b	5	13.2	13.0	13.0	32	0	Negligible	1
r3c	7	13.0	12.9	12.9	32	0	Negligible	1
r3d	10	12.8	12.8	12.8	32	0	Negligible	1
r3e	12	12.7	12.6	12.6	32	0	Negligible	1
r3f	15	12.5	12.3	12.4	31	0	Negligible	1
r3g	18	12.4	12.2	12.2	31	0	Negligible	1
r3h	21	12.3	12.0	12.0	30	0	Negligible	1
r3i	24	12.3	11.9	11.9	30	0	Negligible	1
r3j	27	12.2	11.8	11.8	30	0	Negligible	1
r4	1.5	13.2	11.8	11.8	29	0	Negligible	1

r4a	3	13.1	11.7	11.7	29	0	Negligible	1
r4b	5	13.0	12.7	12.7	32	0	Negligible	1
r4c	7	12.9	12.6	12.7	32	0	Negligible	1
r4d	10	12.6	12.5	12.6	31	0	Negligible	1
r4e	12	12.5	12.4	12.4	31	0	Negligible	1
r4f	15	12.3	12.1	12.2	30	0	Negligible	1
r4g	18	12.2	12.0	12.0	30	0	Negligible	1
r4h	21	12.1	11.8	11.8	30	0	Negligible	2
r4i	24	12.0	11.7	11.7	29	0	Negligible	2
r4j	27	12.0	11.6	11.6	29	0	Negligible	2
r5	1.5	12.7	12.8	12.8	32	0	Negligible	1
r6	1.5	12.6	13.2	13.2	33	0	Negligible	1
r7	1.5	12.6	13.0	13.0	32	0	Negligible	1
r8	1.5	12.6	12.7	12.7	32	0	Negligible	1
r9	1.5	12.8	11.9	11.9	30	0	Negligible	1
r10	1.5	12.7	11.9	11.9	30	0	Negligible	1
r11	1.5	12.9	11.8	11.9	30	0	Negligible	1

r12	1.5	12.9	11.8	11.9	30	0	Negligible	1
r13	1.5	13.0	11.9	11.9	30	0	Negligible	1
r14	1.5	12.9	11.9	11.9	30	0	Negligible	1
r15	1.5	12.9	12.0	12.0	30	0	Negligible	1
r16	1.5	12.8	12.0	12.0	30	0	Negligible	1
r17	1.5	12.9	12.4	12.4	31	0	Negligible	1
r18	1.5	13.0	12.4	12.4	31	0	Negligible	1
r19	1.5	13.0	12.3	12.3	31	0	Negligible	1
r20	1.5	13.2	12.2	12.3	31	0	Negligible	1
r21	1.5	12.9	12.3	12.4	31	0	Negligible	1
r22	1.5	13.4	12.4	12.4	31	0	Negligible	1
r23	1.5	13.4	12.5	12.5	31	0	Negligible	1
r24	1.5	13.5	12.7	12.7	32	0	Negligible	1
r25	1.5	13.2	12.4	12.4	31	0	Negligible	1
r26	1.5	13.5	12.9	12.9	32	0	Negligible	1
r27	1.5	13.2	12.9	12.9	32	0	Negligible	1
r28	1.5	13.6	12.9	12.9	32	0	Negligible	1

r29	1.5	12.7	12.7	12.7	32	0	Negligible	1
r30	1.5	13.8	13.0	13.0	33	0	Negligible	0
r31	1.5	14.0	12.7	12.7	32	0	Negligible	0
r32	1.5	13.2	13.0	13.0	33	0	Negligible	1
r33	1.5	13.1	12.2	12.2	30	0	Negligible	1
r34	1.5	13.0	13.3	13.3	33	0	Negligible	1
r35	1.5	13.0	13.5	13.5	34	0	Negligible	1
r36	1.5	13.4	12.7	12.7	32	0	Negligible	1
r37	1.5	13.3	12.7	12.7	32	0	Negligible	1
r38	1.5	12.8	12.6	12.6	32	0	Negligible	1
r39	1.5	13.3	12.6	12.6	32	0	Negligible	1
r40	1.5	12.6	12.9	12.9	32	0	Negligible	1
r41	1.5	12.7	12.7	12.8	32	0	Negligible	1
r42	1.5	12.5	12.3	12.3	31	0	Negligible	1
r43	1.5	12.7	12.8	12.8	32	0	Negligible	1
r44	1.5	13.2	12.0	12.1	30	0	Negligible	1
r45	1.5	13.5	12.2	12.2	31	0	Negligible	0

r46	1.5	13.5	11.9	11.9	30	0	Negligible	0
r47	1.5	13.5	12.2	12.2	30	0	Negligible	0
r48	1.5	13.4	12.7	12.7	32	0	Negligible	0
r49	1.5	13.4	13.8	13.8	35	0	Negligible	0
r50	1.5	12.0	14.0	14.0	35	0	Negligible	1
r51	1.5	12.1	14.1	14.1	35	0	Negligible	1
r52	1.5	12.1	14.5	14.6	36	0	Negligible	1
r53	1.5	12.1	13.7	13.7	34	0	Negligible	0
r54	1.5	12.1	11.8	11.8	29	0	Negligible	1
r55	1.5	12.1	11.9	11.9	30	0	Negligible	1
r56	1.5	12.1	12.4	12.4	31	0	Negligible	0
r57	1.5	12.1	14.5	14.5	36	0	Negligible	0
r58	1.5	11.9	12.4	12.4	31	0	Negligible	1
r59	1.5	11.9	12.5	12.5	31	0	Negligible	1
r60	1.5	11.9	13.1	13.1	33	0	Negligible	1
r61	1.5	11.9	13.6	13.6	34	0	Negligible	1
r62	1.5	11.9	12.0	12.0	30	0	Negligible	1

r63	1.5	11.9	12.0	12.1	30	0	Negligible	1
r64	1.5	11.9	12.4	12.4	31	0	Negligible	1
r65	1.5	11.9	12.2	12.2	30	0	Negligible	1
r66	1.5	11.9	12.2	12.2	30	0	Negligible	1
r67	1.5	12.1	12.5	12.5	31	0	Negligible	1
r68	1.5	12.2	12.4	12.4	31	0	Negligible	1
r69	1.5	12.1	11.9	11.9	30	0	Negligible	1
r70	1.5	12.1	12.0	12.0	30	0	Negligible	1
r71	1.5	12.1	12.4	12.4	31	0	Negligible	1
r72	1.5	12.1	12.1	12.1	30	0	Negligible	1
r73	1.5	13.0	12.2	12.2	30	0	Negligible	1
r74	1.5	13.0	12.2	12.2	30	0	Negligible	1
r75	1.5	13.0	12.3	12.3	31	0	Negligible	1
r76	1.5	13.0	12.4	12.4	31	0	Negligible	1
r77	1.5	13.1	12.5	12.5	31	0	Negligible	1
r78	1.5	12.6	12.5	12.5	31	0	Negligible	1
r79	1.5	12.5	12.5	12.5	31	0	Negligible	1