

Appendix 8.15: Proposed Development (Operational Phase) Impacts at Human Receptors (Cumulative Impacts)

APPENDIX 8.15 – PROPOSED DEVELOPMENT (OPERATIONAL PHASE) IMPACTS AT HUMAN RECEPTORS (CUMULATIVE IMPACTS)

Table 8.15.1: Predicted 2030 Annual Mean NO₂ Concentration Change

Receptor	NO ₂ Annual Mean Concentration		% Change of Objective	Impact Descriptor
	Without Development	With Development		
Residential Receptors				
AB.R1	6.4	6.5	0%	Negligible
AB.R2a	13.5	20.9	>10%	Moderate
AB.R2b	13.5	20.8	>10%	Moderate
AB.R3	10.7	12.2	2-5%	Negligible
AB.R4	6.7	7.9	2-5%	Negligible
AB.R5	6.0	6.4	1%	Negligible
AB.R6	6.9	7.0	0%	Negligible
AB.R7	7.0	7.0	0%	Negligible
AB.R8	5.9	6.0	0%	Negligible
AB.R9	6.0	6.1	0%	Negligible
AB.R10	6.5	6.6	0%	Negligible
AB.R11	7.9	8.0	0%	Negligible
AB.R12	9.0	9.2	1%	Negligible
AB.R13	8.3	8.4	0%	Negligible
AB.R14	7.1	7.1	0%	Negligible
AB.R15	10.5	10.7	0%	Negligible
AB.R16	9.6	9.8	0%	Negligible
CD.R1	9.7	10.6	2-5%	Negligible
CD.R2	11.4	11.9	1%	Negligible
CD.R3	12.1	12.9	2-5%	Negligible
CD.R4	11.4	11.9	1%	Negligible
CD.R5	11.1	11.7	1%	Negligible
CD.R6	12.9	13.6	2-5%	Negligible
CD.R7	16.4	18.5	2-5%	Negligible
CD.R8a	16.3	18.4	2-5%	Negligible
CD.R8b	13.7	15.1	2-5%	Negligible

Receptor	NO ₂ Annual Mean Concentration		% Change of Objective	Impact Descriptor
	Without Development	With Development		
Residential Receptors				
CD.R9	9.9	10.4	1%	Negligible
CD.R10	10.2	10.7	1%	Negligible
CD.R11	10.7	11.3	2-5%	Negligible
CD.R12	10.5	10.8	1%	Negligible
CD.R13	12.0	12.2	0%	Negligible
CD.R14	13.1	13.3	0%	Negligible
CD.R15	10.8	10.9	0%	Negligible
EF.R1	14.1	14.4	1%	Negligible
EF.R2	11.1	11.3	0%	Negligible
EF.R3	13.6	13.9	1%	Negligible
EF.R4	10.6	11.5	2-5%	Negligible
EF.R5	13.3	13.8	1%	Negligible
EF.R6	14.7	16.1	2-5%	Negligible
EF.R7	12.9	13.9	2-5%	Negligible
EF.R8	14.7	16.1	2-5%	Negligible
EF.R9	9.1	9.4	1%	Negligible
EF.R10	10.6	10.9	1%	Negligible
GH.R1	9.9	10.0	0%	Negligible
GH.R2	11.0	11.1	0%	Negligible
GH.R3	10.4	10.5	0%	Negligible
GH.R4	9.6	9.6	0%	Negligible
KL.R1a	12.1	12.1	0%	Negligible
KL.R1b	12.0	12.0	0%	Negligible
KL.R2	16.7	16.8	0%	Negligible
KL.R3	18.2	18.2	0%	Negligible
KL.R4	17.8	17.9	0%	Negligible
KL.R5a	16.0	16.0	0%	Negligible
KL.R5b	16.1	16.2	0%	Negligible
KL.R6	18.1	18.2	0%	Negligible
KL.R7	18.9	19.0	0%	Negligible
KL.R8	11.6	11.6	0%	Negligible
KL.R9	13.4	13.5	0%	Negligible
KL.R10	13.2	13.2	0%	Negligible
KL.R11a	13.7	13.7	0%	Negligible
KL.R11b	13.6	13.7	0%	Negligible
KL.R12	13.0	13.1	0%	Negligible
KL.R13	13.5	13.5	0%	Negligible

Receptor	NO ₂ Annual Mean Concentration		% Change of Objective	Impact Descriptor
	Without Development	With Development		
Residential Receptors				
MN.R1	11.7	11.8	0%	Negligible
MN.R2a	14.9	15.0	0%	Negligible
MN.R2b	15.9	16.1	0%	Negligible
X.R1a	15.7	15.8	0%	Negligible
X.R1b	13.0	13.1	0%	Negligible
X.R2	13.6	13.7	0%	Negligible
X.R3	12.3	12.4	0%	Negligible

Table 8.15.2: Predicted 2030 Annual Mean PM₁₀ Concentration Change

Receptor	PM ₁₀ Annual Mean Concentration		% Change of Objective	Impact Descriptor
	Without Development	With Development		
Residential Receptors				
AB.R1	13.0	13.0	0%	Negligible
AB.R2a	16.0	18.7	6-10%	Slight
AB.R2b	16.0	18.6	6-10%	Slight
AB.R3	14.8	15.9	2-5%	Negligible
AB.R4	13.3	14.0	2-5%	Negligible
AB.R5	12.5	12.9	1%	Negligible
AB.R6	12.7	12.8	0%	Negligible
AB.R7	12.9	13.0	0%	Negligible
AB.R8	12.2	12.3	0%	Negligible
AB.R9	12.9	13.0	0%	Negligible
AB.R10	13.2	13.2	0%	Negligible
AB.R11	13.7	13.7	0%	Negligible
AB.R12	14.9	15.0	0%	Negligible
AB.R13	14.3	14.3	0%	Negligible
AB.R14	13.5	13.5	0%	Negligible
AB.R15	15.7	15.9	0%	Negligible
AB.R16	15.1	15.2	0%	Negligible
CD.R1	14.1	14.5	1%	Negligible
CD.R2	14.8	15.1	1%	Negligible
CD.R3	15.4	15.8	1%	Negligible
CD.R4	14.8	15.1	1%	Negligible
CD.R5	14.7	14.9	1%	Negligible
CD.R6	15.3	15.6	1%	Negligible
CD.R7	17.9	18.6	2-5%	Negligible
CD.R8a	18.2	18.9	2-5%	Negligible

Receptor	PM ₁₀ Annual Mean Concentration		% Change of Objective	Impact Descriptor
	Without Development	With Development		
Residential Receptors				
CD.R8b	17.2	17.7	1%	Negligible
CD.R9	15.9	16.2	1%	Negligible
CD.R10	16.1	16.5	1%	Negligible
CD.R11	16.3	16.7	1%	Negligible
CD.R12	15.7	15.8	0%	Negligible
CD.R13	15.0	15.1	0%	Negligible
CD.R14	16.4	16.6	0%	Negligible
CD.R15	15.5	15.6	0%	Negligible
EF.R1	17.3	17.7	1%	Negligible
EF.R2	15.4	15.6	0%	Negligible
EF.R3	18.0	18.3	1%	Negligible
EF.R4	14.9	15.2	1%	Negligible
EF.R5	16.3	16.5	0%	Negligible
EF.R6	16.9	17.3	1%	Negligible
EF.R7	16.2	16.5	1%	Negligible
EF.R8	17.0	17.5	1%	Negligible
EF.R9	14.5	14.7	0%	Negligible
EF.R10	16.6	16.9	1%	Negligible
GH.R1	15.6	15.6	0%	Negligible
GH.R2	16.0	16.1	0%	Negligible
GH.R3	15.9	15.9	0%	Negligible
GH.R4	15.5	15.6	0%	Negligible
KL.R1a	15.3	15.3	0%	Negligible
KL.R1b	15.3	15.3	0%	Negligible
KL.R2	18.2	18.3	0%	Negligible
KL.R3	18.7	18.7	0%	Negligible
KL.R4	18.6	18.6	0%	Negligible
KL.R5a	18.1	18.2	0%	Negligible
KL.R5b	18.3	18.4	0%	Negligible
KL.R6	18.8	18.8	0%	Negligible
KL.R7	19.0	19.0	0%	Negligible
KL.R8	16.2	16.2	0%	Negligible
KL.R9	16.9	17.0	0%	Negligible
KL.R10	16.8	16.9	0%	Negligible
KL.R11a	17.3	17.3	0%	Negligible
KL.R11b	17.4	17.4	0%	Negligible
KL.R12	16.5	16.5	0%	Negligible

Receptor	PM ₁₀ Annual Mean Concentration		% Change of Objective	Impact Descriptor
	Without Development	With Development		
Residential Receptors				
KL.R13	16.4	16.5	0%	Negligible
MN.R1	17.0	17.0	0%	Negligible
MN.R2a	18.1	18.2	0%	Negligible
MN.R2b	18.5	18.6	0%	Negligible
X.R1a	16.0	16.1	0%	Negligible
X.R1b	14.9	15.0	0%	Negligible
X.R2	15.4	15.5	0%	Negligible
X.R3	16.5	16.6	0%	Negligible

Table 8.15.3: Predicted 2030 Annual Mean PM_{2.5} Concentration Change

Receptor	PM _{2.5} Annual Mean Concentration		% Change of Limit	Impact Descriptor
	Without Development	With Development		
Residential Receptors				
AB.R1	7.0	7.0	0%	Negligible
AB.R2a	8.2	9.6	6-10%	Slight
AB.R2b	8.2	9.6	6-10%	Slight
AB.R3	7.6	8.2	2-5%	Negligible
AB.R4	7.3	8.2	2-5%	Negligible
AB.R5	6.9	7.3	2-5%	Negligible
AB.R6	7.6	7.6	0%	Negligible
AB.R7	7.5	7.6	0%	Negligible
AB.R8	6.9	7.0	0%	Negligible
AB.R9	7.0	7.0	0%	Negligible
AB.R10	7.3	7.4	0%	Negligible
AB.R11	7.5	7.5	0%	Negligible
AB.R12	8.1	8.1	0%	Negligible
AB.R13	7.7	7.8	0%	Negligible
AB.R14	7.3	7.4	0%	Negligible
AB.R15	9.1	9.2	0%	Negligible
AB.R16	8.8	8.8	0%	Negligible
CD.R1	7.7	8.0	1%	Negligible
CD.R2	8.2	8.3	1%	Negligible
CD.R3	8.5	8.7	1%	Negligible
CD.R4	8.0	8.2	1%	Negligible
CD.R5	7.9	8.1	1%	Negligible
CD.R6	8.3	8.4	1%	Negligible
CD.R7	9.4	9.7	2-5%	Negligible

Receptor	PM _{2.5} Annual Mean Concentration		% Change of Limit	Impact Descriptor
	Without Development	With Development		
Residential Receptors				
CD.R8a	9.5	9.9	2-5%	Negligible
CD.R8b	9.0	9.2	1%	Negligible
CD.R9	8.3	8.4	1%	Negligible
CD.R10	8.4	8.6	1%	Negligible
CD.R11	8.6	8.8	1%	Negligible
CD.R12	8.2	8.3	0%	Negligible
CD.R13	8.2	8.3	0%	Negligible
CD.R14	8.7	8.8	0%	Negligible
CD.R15	8.2	8.2	0%	Negligible
EF.R1	9.6	9.9	1%	Negligible
EF.R2	8.5	8.7	1%	Negligible
EF.R3	10.5	10.7	1%	Negligible
EF.R4	8.7	8.9	1%	Negligible
EF.R5	9.4	9.5	0%	Negligible
EF.R6	9.7	10.0	1%	Negligible
EF.R7	9.4	9.6	1%	Negligible
EF.R8	9.8	10.1	1%	Negligible
EF.R9	8.5	8.6	1%	Negligible
EF.R10	8.4	8.6	1%	Negligible
GH.R1	8.1	8.2	0%	Negligible
GH.R2	8.4	8.4	0%	Negligible
GH.R3	8.3	8.3	0%	Negligible
GH.R4	8.1	8.1	0%	Negligible
KL.R1a	8.1	8.1	0%	Negligible
KL.R1b	8.1	8.1	0%	Negligible
KL.R2	9.6	9.7	0%	Negligible
KL.R3	9.9	9.9	0%	Negligible
KL.R4	9.9	9.9	0%	Negligible
KL.R5a	9.6	9.6	0%	Negligible
KL.R5b	9.7	9.7	0%	Negligible
KL.R6	10.0	10.0	0%	Negligible
KL.R7	10.1	10.1	0%	Negligible
KL.R8	8.7	8.7	0%	Negligible
KL.R9	9.1	9.1	0%	Negligible
KL.R10	9.0	9.1	0%	Negligible
KL.R11a	9.3	9.3	0%	Negligible
KL.R11b	9.3	9.3	0%	Negligible

Receptor	PM _{2.5} Annual Mean Concentration		% Change of Limit	Impact Descriptor
	Without Development	With Development		
Residential Receptors				
KL.R12	8.5	8.6	0%	Negligible
KL.R13	8.5	8.6	0%	Negligible
MN.R1	8.2	8.2	0%	Negligible
MN.R2a	8.8	8.9	0%	Negligible
MN.R2b	9.1	9.1	0%	Negligible
X.R1a	9.0	9.1	0%	Negligible
X.R1b	8.4	8.4	0%	Negligible
X.R2	8.6	8.6	0%	Negligible
X.R3	8.7	8.7	0%	Negligible