

Appendix 9.4 - Modelled Results Using 2015 Verification

This appendix outlines the impact of the Proposed Development in a scenario in which the model was verified on 2015 data, as opposed to 2016 data. NBC monitoring data highlighted a consistent and unexplained increase in annual mean NO₂ concentrations across the town in 2016, which was inconsistent with the general trend of improving air quality seen between 2012 and 2015.

Table A9.4.1: Impact of Proposed Development on Annual Mean NO₂ Concentrations (µg.m⁻³) (2021)

Receptor	2018 Baseline	2021 Without Development	2021 With Development	Change due to Development		Significance of Impact
	A	B		B-A	As a % of AQS	
(AQMA No.5) Wootton						
W1	18.7	15.8	16.3	0.5	1.2	Negligible
W2	24.5	20.6	21.5	1.0	2.4	Negligible
W3	20.5	17.3	17.9	0.6	1.5	Negligible
W4	25.0	20.9	21.9	1.0	2.5	Negligible
W5	21.2	17.8	18.5	0.7	1.7	Negligible
(AQMA No.4) Kingsthorpe						
K1	31.8	23.3	23.5	0.2	0.4	Negligible
K2	23.8	18.8	18.9	0.1	0.2	Negligible
K3	37.3	25.8	26.0	0.2	0.5	Negligible
K4	34.9	32.3	32.9	0.6	1.4	Negligible
K5	33.8	28.6	29.0	0.4	1.0	Negligible
K6	34.7	29.3	29.7	0.4	1.0	Negligible
K7	38.4	32.7	33.2	0.6	1.4	Negligible
K8	26.9	23.1	23.3	0.3	0.6	Negligible
K9	26.0	22.4	22.7	0.3	0.6	Negligible
K10	36.7	33.4	34.1	0.7	1.8	Slight
K11	30.6	27.6	28.1	0.5	1.2	Negligible
K12	33.4	30.0	30.6	0.6	1.5	Negligible
K13	36.8	31.1	31.6	0.5	1.2	Negligible
Victoria Promenade (AQMA No.2)						
VP1	33.3	24.1	24.2	0.1	0.2	Negligible
VP2	34.5	24.8	24.9	0.1	0.2	Negligible
VP3	40.6	28.6	28.6	0.0	0.0	Negligible
VP4	32.5	26.4	26.4	-0.1	-0.1	Negligible
VP5	31.2	26.1	26.0	-0.1	-0.1	Negligible

VP6	32.2	26.7	26.7	0.1	0.2	Negligible
St Michaels Road (AQMA No.8)						
SM1	30.1	25.8	25.8	0.0	0.0	Negligible
SM2	28.8	24.8	24.8	0.0	0.0	Negligible
SM3	28.6	24.6	24.6	0.0	0.0	Negligible
Campbell Square (AQMA No.6)						
CS1	48.6	36.8	36.8	0.1	0.2	Negligible
CS2	36.8	29.5	29.7	0.2	0.4	Negligible
CS3	28.0	24.2	24.5	0.2	0.6	Negligible
CS4	29.6	26.4	26.8	0.4	1.0	Negligible
St James (AQMA No.3)						
SJ1	38.8	32.0	31.5	-0.6	-1.4	Negligible
SJ2	45.0	36.7	35.9	-0.8	-2.0	Slight
SJ3	29.3	24.3	24.0	-0.4	-0.9	Negligible
SJ4	46.1	37.6	36.8	-0.8	-2.0	Slight
SJ5	34.3	28.8	28.4	-0.4	-0.9	Negligible
SJ6	31.2	26.3	26.4	0.1	0.2	Negligible
SJ7	33.6	28.3	28.4	0.0	0.1	Negligible
SJ8	31.9	27.0	27.3	0.3	0.6	Negligible
SJ9	40.6	32.8	32.8	0.0	0.1	Negligible
SJ10	36.7	30.1	30.2	0.1	0.3	Negligible
SJ11	23.5	20.7	20.5	-0.2	-0.4	Negligible
SJ12	30.6	26.5	25.9	-0.5	-1.3	Negligible
SJ13	20.6	18.2	18.1	-0.1	-0.3	Negligible
SJ14	23.5	20.6	20.4	-0.2	-0.4	Negligible
SJ15	33.4	28.8	28.4	-0.3	-0.9	Negligible
SJ16	28.5	25.6	25.4	-0.2	-0.6	Negligible

Table A9.4.2: Predicted Annual Mean NO₂ Concentrations (µg.m⁻³) at Sensitive Receptors (2031)

Receptor	2018 Baseline	2031 Without Development	2031 With Development	Change due to Proposed Development		Significance of Impact
	A	B	C	C-B	As a % of AQS	
(AQMA No.5) Wootton						
W1	18.7	10.3	10.5	0.3	0.7	Negligible
W2	24.5	12.5	13.0	0.5	1.2	Negligible
W3	20.5	10.9	11.2	0.3	0.7	Negligible
W4	25.0	12.7	13.2	0.5	1.2	Negligible
W5	21.2	11.2	11.5	0.3	0.8	Negligible
(AQMA No.4) Kingsthorpe						
K1	31.8	15.6	15.7	0.1	0.3	Negligible
K2	23.8	13.2	13.3	0.1	0.3	Negligible
K3	37.3	17.0	17.1	0.1	0.3	Negligible
K4	34.9	19.4	19.6	0.1	0.3	Negligible
K5	33.8	17.5	17.6	0.1	0.1	Negligible
K6	34.7	17.9	17.9	0.1	0.1	Negligible
K7	38.4	19.5	19.5	0.1	0.1	Negligible
K8	26.9	14.7	14.7	0.0	0.1	Negligible
K9	26.0	14.3	14.3	0.0	0.0	Negligible
K10	36.7	19.5	19.8	0.2	0.5	Negligible
K11	30.6	16.9	16.9	0.1	0.1	Negligible
K12	33.4	17.8	18.0	0.2	0.4	Negligible
K13	36.8	18.8	18.9	0.1	0.2	Negligible
Victoria Promenade (AQMA No.2)						
VP1	33.3	19.1	19.1	0.0	0.0	Negligible
VP2	34.5	19.4	19.4	0.0	0.0	Negligible
VP3	40.6	21.0	21.0	-0.1	-0.2	Negligible
VP4	32.5	20.2	20.2	0.0	0.0	Negligible
VP5	31.2	20.1	20.0	0.0	-0.1	Negligible
VP6	32.2	20.3	20.4	0.1	0.2	Negligible
St Michaels Road (AQMA No.8)						
SM1	30.1	20.1	20.1	0.0	0.0	Negligible
SM2	28.8	19.7	19.7	0.0	-0.1	Negligible
SM3	28.6	19.6	19.6	0.0	0.0	Negligible
Campbell Square (AQMA No.6)						

CS1	48.6	25.0	25.2	0.2	0.6	Negligible
CS2	36.8	20.4	20.6	0.2	0.5	Negligible
CS3	28.0	17.0	17.2	0.2	0.4	Negligible
CS4	29.6	18.5	18.9	0.3	0.8	Negligible
St James (AQMA No.3)						
SJ1	38.8	19.9	20.3	0.4	1.0	Negligible
SJ2	45.0	22.0	22.6	0.6	1.5	Negligible
SJ3	29.3	15.9	16.2	0.3	0.6	Negligible
SJ4	46.1	22.5	23.1	0.6	1.5	Negligible
SJ5	34.3	18.2	18.5	0.3	0.6	Negligible
SJ6	31.2	18.2	18.3	0.0	0.1	Negligible
SJ7	33.6	19.5	19.6	0.0	0.1	Negligible
SJ8	31.9	18.6	18.7	0.0	0.1	Negligible
SJ9	40.6	22.0	22.3	0.3	0.8	Negligible
SJ10	36.7	20.4	20.6	0.2	0.5	Negligible
SJ11	23.5	14.3	14.4	0.1	0.2	Negligible
SJ12	30.6	15.9	16.2	0.3	0.8	Negligible
SJ13	20.6	13.1	13.1	0.0	0.1	Negligible
SJ14	23.5	14.1	14.2	0.0	0.1	Negligible
SJ15	33.4	17.7	18.0	0.3	0.8	Negligible
SJ16	28.5	16.5	16.6	0.1	0.4	Negligible

Table A9.4.3: Impact of Proposed Development on Annual Mean PM₁₀ Concentrations (µg.m⁻³) (2021)

Receptor	2018 Baseline	2021 Without Development	2021 With Development	Change due to Development		Significance of Impact
(AQMA No.5) Wootton						
W1	17.4	17.1	17.2	0.2	0.4	Negligible
W2	18.5	18.2	18.5	0.3	0.9	Negligible
W3	17.7	17.4	17.6	0.2	0.5	Negligible
W4	18.6	18.3	18.6	0.4	0.9	Negligible
W5	17.8	17.5	17.7	0.2	0.6	Negligible
(AQMA No.4) Kingsthorpe						
K1	20.3	19.4	19.4	0.0	0.1	Negligible
K2	18.9	18.3	18.3	0.0	0.1	Negligible
K3	21.3	20.0	20.0	0.0	0.1	Negligible
K4	20.7	21.0	21.2	0.1	0.3	Negligible
K5	20.8	20.5	20.6	0.1	0.2	Negligible
K6	20.9	20.7	20.8	0.1	0.2	Negligible
K7	21.7	21.5	21.6	0.1	0.3	Negligible
K8	19.5	19.3	19.3	0.1	0.2	Negligible
K9	18.6	18.4	18.4	0.0	0.1	Negligible
K10	20.5	20.5	20.6	0.1	0.3	Negligible
K11	20.0	20.0	20.1	0.1	0.2	Negligible
K12	19.1	19.0	19.0	0.1	0.2	Negligible
K13	19.9	19.6	19.7	0.1	0.2	Negligible
Victoria Promenade (AQMA No.2)						
VP1	18.5	17.3	17.3	0.0	0.0	Negligible
VP2	18.6	17.4	17.4	0.0	0.0	Negligible
VP3	19.2	18.1	18.1	0.0	0.0	Negligible
VP4	18.2	17.7	17.7	0.0	0.0	Negligible
VP5	18.0	17.7	17.6	0.0	0.0	Negligible
VP6	18.2	17.9	17.9	0.0	0.1	Negligible
St Michaels Road (AQMA No.8)						
SM1	17.2	17.0	17.0	0.0	0.0	Negligible
SM2	17.2	16.9	16.9	0.0	0.0	Negligible
SM3	17.9	17.7	17.7	0.0	0.0	Negligible

Campbell Square (AQMA No.6)						
CS1	19.7	19.2	19.2	0.0	0.0	Negligible
CS2	18.8	18.5	18.5	0.0	0.0	Negligible
CS3	18.3	18.0	18.1	0.0	0.0	Negligible
CS4	18.4	18.2	18.2	0.0	0.1	Negligible
St James (AQMA No.3)						
SJ1	18.8	18.6	18.4	-0.1	-0.3	Negligible
SJ2	19.1	18.8	18.7	-0.1	-0.3	Negligible
SJ3	16.9	16.7	16.6	0.0	-0.1	Negligible
SJ4	20.0	19.8	19.7	-0.1	-0.3	Negligible
SJ5	18.7	18.5	18.5	-0.1	-0.1	Negligible
SJ6	18.3	18.1	18.1	0.0	0.0	Negligible
SJ7	18.7	18.5	18.5	0.0	0.0	Negligible
SJ8	18.4	18.3	18.3	0.0	0.1	Negligible
SJ9	19.3	19.0	19.1	0.0	0.0	Negligible
SJ10	18.9	18.7	18.7	0.0	0.1	Negligible
SJ11	17.1	17.0	16.9	0.0	-0.1	Negligible
SJ12	18.3	18.2	18.1	-0.1	-0.2	Negligible
SJ13	16.9	16.7	16.7	0.0	-0.1	Negligible
SJ14	17.4	17.2	17.2	0.0	-0.1	Negligible
SJ15	18.8	18.8	18.7	-0.1	-0.2	Negligible
SJ16	18.3	18.5	18.4	-0.1	-0.2	Negligible

Table A9.4.4: Predicted Annual Mean PM₁₀ Concentrations (µg.m⁻³) at Sensitive Receptors (2031)

Receptor	2018 Baseline	2031 Without Development	2031 With Development	Change due to Proposed Development		Significance of Impact
	A	B	C	C-B	As a % of AQS	
(AQMA No.5) Wootton						
W1	17.4	16.9	17.2	0.3	0.7	Negligible
W2	18.5	18.1	18.6	0.5	1.4	Negligible
W3	17.7	17.2	17.6	0.4	0.9	Negligible
W4	18.6	18.1	18.7	0.6	1.4	Negligible
W5	17.8	17.4	17.7	0.4	1.0	Negligible
(AQMA No.4) Kingsthorpe						
K1	20.3	19.4	19.5	0.1	0.1	Negligible
K2	18.9	18.3	18.3	0.1	0.1	Negligible
K3	21.3	20.1	20.1	0.1	0.2	Negligible
K4	20.7	20.8	20.9	0.1	0.2	Negligible
K5	20.8	20.4	20.4	0.1	0.2	Negligible
K6	20.9	20.5	20.6	0.1	0.2	Negligible
K7	21.7	21.3	21.4	0.1	0.2	Negligible
K8	19.5	19.0	19.1	0.0	0.1	Negligible
K9	18.6	18.1	18.2	0.0	0.0	Negligible
K10	20.5	20.1	20.2	0.0	0.1	Negligible
K11	20.0	19.7	19.8	0.0	0.1	Negligible
K12	19.1	18.7	18.7	0.0	0.1	Negligible
K13	19.9	19.5	19.5	0.0	0.1	Negligible
Victoria Promenade (AQMA No.2)						
VP1	18.5	17.0	17.0	0.0	-0.1	Negligible
VP2	18.6	17.1	17.1	0.0	-0.1	Negligible
VP3	19.2	17.8	17.8	0.0	0.0	Negligible
VP4	18.2	17.5	17.5	0.0	0.0	Negligible
VP5	18.0	17.4	17.4	0.0	0.0	Negligible
VP6	18.2	17.7	17.7	0.0	0.1	Negligible
St Michaels Road (AQMA No.8)						
SM1	17.2	16.9	16.9	0.0	0.0	Negligible
SM2	17.2	16.8	16.8	0.0	0.0	Negligible
SM3	17.9	17.6	17.6	0.0	0.0	Negligible
Campbell Square (AQMA No.6)						
CS1	19.7	19.3	19.4	0.0	0.1	Negligible
CS2	18.8	18.4	18.5	0.0	0.1	Negligible

CS3	18.3	17.8	17.9	0.0	0.1	Negligible
CS4	18.4	18.1	18.1	0.0	0.1	Negligible
St James (AQMA No.3)						
SJ1	18.8	18.5	18.5	0.0	0.1	Negligible
SJ2	19.1	18.7	18.7	0.0	0.1	Negligible
SJ3	16.9	16.5	16.5	0.0	0.0	Negligible
SJ4	20.0	19.7	19.8	0.0	0.1	Negligible
SJ5	18.7	18.4	18.4	0.0	0.1	Negligible
SJ6	18.3	18.4	18.4	0.0	0.0	Negligible
SJ7	18.7	18.9	18.9	0.0	0.0	Negligible
SJ8	18.4	18.7	18.7	0.0	-0.1	Negligible
SJ9	19.3	19.6	19.6	0.0	0.0	Negligible
SJ10	18.9	19.2	19.2	0.0	0.0	Negligible
SJ11	17.1	16.8	16.8	0.0	0.0	Negligible
SJ12	18.3	17.6	17.6	0.0	0.1	Negligible
SJ13	16.9	16.5	16.5	0.0	0.0	Negligible
SJ14	17.4	17.0	17.0	0.0	-0.1	Negligible
SJ15	18.8	18.6	18.5	-0.1	-0.2	Negligible
SJ16	18.3	18.3	18.2	-0.1	-0.2	Negligible

The data in the above tables re-enforce the conclusion that significant impacts are to be expected at isolated dwellings due to the operation of the Proposed Development. However, it shows that the overall significance of the Proposed Development in each study area is lesser. In this sensitivity test, the overall impact of the Proposed Development on NO₂ and PM₁₀ in each study area is considered **Negligible**.