

PORTISHEAD BRANCH LINE PRELIMINARY  
ENVIRONMENTAL INFORMATION REPORT  
VOLUME 4

APPENDIX 7.4

## Air Quality Modelling Results





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SECTION 1

# Air Quality Modelling Results

## 1.1 Receptor Modelled Results

- 1.1.1 This appendix presents the adjusted nitrogen dioxide (NO<sub>2</sub>) and particulate matter (PM<sub>10</sub>) predicted concentrations at selected receptors in North Somerset District Council (NSDC) and Bristol City Council (BCC) for the base case (2013) and in the year of opening (2021) for the Do-Minimum (without scheme) and Do-Something (with scheme) scenarios.
- 1.1.2 The difference in the predictions for the Do-Minimum and Do-Something represent the impact of the Portishead Branch Line (MetroWest Phase 1) Development Consent Order Scheme (the DCO Scheme) on air quality.

## 1.2 NSC Modelled Results

- 1.2.1 Table 1.1 below shows modelled concentrations at receptors in NSC. No exceedances of the related air quality limit are predicted for any of the considered scenarios. The locations of the receptor sites are presented on Figure 7.3 in Volume 2 of the Preliminary Environmental Information Report (the PEI Report).

**Table 1.1: Annual Mean Modelled NO<sub>2</sub> Concentrations (µg m<sup>-3</sup>) at Receptors in NSC for the Base Year (2013) and the Year of Opening (2021) for the Do-Minimum (DM) and Do-Something (DS) Scenarios**

ID	Base Year 2013	2021 Annual Mean NO <sub>2</sub> [Defra TG(16) Methodology] (µg m <sup>-3</sup> )		
		Do-Minimum	Do-Something	Impact (DS-DM)
R1	18.0	12.3	12.4	0.05
R2	19.8	14.0	14.0	0.09
R3	15.0	11.5	12.4	0.82
R4	23.3	14.9	14.9	0.04
R5	19.3	13.7	14.0	0.25
R6	16.5	12.3	12.7	0.32
R7	23.1	14.8	14.8	0.04
R8	18.4	12.5	12.5	0.04
R9	14.9	11.5	12.4	0.92
R10	14.6	11.4	12.0	0.69
R11	14.4	11.2	12.0	0.79
R12	14.3	11.2	12.1	0.93
R13	12.5	9.7	10.8	1.06
R14	12.5	9.7	10.7	1.02
R15	12.7	9.8	10.2	0.36
R16	18.9	12.7	14.6	1.88
R17	18.4	12.4	13.4	0.93
R18	24.3	15.1	15.2	0.11

**Table 1.1: Annual Mean Modelled NO<sub>2</sub> Concentrations (µg m<sup>-3</sup>) at Receptors in NSC for the Base Year (2013) and the Year of Opening (2021) for the Do-Minimum (DM) and Do-Something (DS) Scenarios**

ID	2021 Annual Mean NO <sub>2</sub> [Defra TG(16) Methodology] (µg m <sup>-3</sup> )			Impact (DS-DM)
	Base Year 2013	Do-Minimum	Do-Something	
R19	18.5	15.5	16.3	0.82
R20	18.5	15.4	16.4	1.00
R21	18.5	15.4	16.3	0.92
R22	18.6	15.5	16.7	1.15
R23	18.5	15.3	16.0	0.73
R24	17.2	13.9	15.1	1.22
R25	17.6	14.4	16.3	1.89
R26	17.3	14.2	15.9	1.68
R27	17.4	14.2	15.9	1.69
R28	16.9	13.7	14.8	1.03
R29	16.5	13.4	14.1	0.68
R30	18.7	14.6	15.8	1.11
R31	17.9	15.0	16.3	1.33
R32	18.1	15.2	16.6	1.44
R33	12.7	10.0	10.7	0.73
R34	29.3	21.1	21.2	0.05
R35	24.3	18.3	18.4	0.05
R36	21.8	17.0	17.0	0.05
R37	21.0	16.5	16.6	0.06
R38	20.6	16.3	16.4	0.06
R39	34.0	28.3	28.4	0.14
R40	34.2	28.4	28.6	0.17
R41	34.4	28.5	28.8	0.24
R42	34.9	28.8	29.2	0.43
R43	35.6	29.2	30.1	0.85

1.2.2 Table 1.2 below reports PM<sub>10</sub> modelled concentrations at receptors in NSC for all the scenarios considered. No exceedances of the related air quality limit are predicted.

**Table 1.2: Annual Mean Modelled PM<sub>10</sub> Concentrations (µg m<sup>-3</sup>) at Receptors in NSC for the Base Year (2013) and the Year of Opening (2021) for the Do-Minimum (DM) and Do-Something (DS) Scenarios**

ID	Base Year 2013	2021 Annual Mean PM <sub>10</sub> [Defra TG(16) Methodology] (µg m <sup>-3</sup> )		Impact (DS-DM)
		Do-Minimum	Do-Something	
R1	16.0	14.8	14.8	0.00
R2	17.3	16.1	16.1	0.00
R3	16.8	15.6	15.6	0.05
R4	16.7	15.5	15.5	0.00
R5	17.2	16.0	16.1	0.01
R6	16.9	15.7	15.7	0.02
R7	16.7	15.5	15.5	0.00
R8	16.1	14.9	14.9	0.00
R9	16.8	15.5	15.6	0.06
R10	16.7	15.5	15.6	0.04
R11	16.7	15.5	15.5	0.05
R12	16.7	15.5	15.5	0.06
R13	15.1	14.0	14.0	0.07
R14	15.1	14.0	14.0	0.06
R15	15.1	14.0	14.0	0.02
R16	18.5	17.1	17.2	0.12
R17	18.5	17.0	17.1	0.06
R18	19.3	17.8	17.8	0.01
R19	18.3	17.0	17.1	0.05
R20	16.6	15.1	15.2	0.06
R21	16.6	15.1	15.2	0.06
R22	16.6	15.1	15.2	0.07
R23	16.6	15.1	15.1	0.05
R24	15.8	14.6	14.6	0.08
R25	15.8	14.6	14.7	0.12
R26	15.8	14.6	14.7	0.11
R27	15.8	14.6	14.7	0.11
R28	15.8	14.5	14.6	0.07
R29	15.8	14.5	14.6	0.04
R30	16.1	14.8	14.8	0.07

**Table 1.2: Annual Mean Modelled PM<sub>10</sub> Concentrations (µg m<sup>-3</sup>) at Receptors in NSC for the Base Year (2013) and the Year of Opening (2021) for the Do-Minimum (DM) and Do-Something (DS) Scenarios**

ID	Base Year 2013	2021 Annual Mean PM <sub>10</sub> [Defra TG(16) Methodology] (µg m <sup>-3</sup> )		Impact (DS-DM)
		Do-Minimum	Do-Something	
R31	15.6	14.3	14.4	0.09
R32	15.6	14.3	14.4	0.09
R33	15.4	14.4	14.4	0.05
R34	17.1	15.7	15.7	0.00
R35	16.5	15.1	15.1	0.00
R36	16.1	14.8	14.8	0.00
R37	16.0	14.7	14.7	0.00
R38	16.0	14.6	14.6	0.00
R39	19.5	17.4	17.4	0.01
R40	19.6	17.4	17.4	0.01
R41	19.6	17.4	17.5	0.02
R42	19.6	17.5	17.5	0.03
R43	19.7	17.5	17.6	0.06



## 1.3 BCC Modelled Results

1.3.1 Table 1.3 below shows modelled concentrations at receptors in BCC. No exceedances of the related air quality limit are predicted for any of the future scenarios considered.

**Table 1.3: Annual Mean Modelled NO<sub>2</sub> Concentrations (µg m<sup>-3</sup>) at Receptors in BCC for the Base Year (2013) and the Year of Opening (2021) for the Do-Minimum (DM) and Do-Something (DS) Scenarios**

ID	2021 Annual Mean NO <sub>2</sub> [Defra TG(16) Methodology]			Impact (DS-DM)
	Base Year 2013	Do-Minimum	Do-Something	
R44	23.1	17.0	17.8	0.76
R45	24.6	17.9	19.2	1.25
R46	23.1	17.1	18.3	1.13
R47	20.1	15.6	16.4	0.84
R48	28.8	21.1	22.0	0.91
R49	38.6	25.4	26.1	0.66
R50	55.2	43.8	44.3	0.46
R51	52.7	40.9	41.3	0.40
R52	40.3	27.7	28.2	0.50
R53	44.7	28.9	29.4	0.41
R54	33.6	24.1	24.7	0.58
R55	33.2	23.6	24.1	0.47
R56	39.6	24.0	24.1	0.12
R57	25.7	20.3	20.5	0.21
R58	26.1	21.0	21.4	0.41
R59	26.0	21.3	22.0	0.73
R60	29.0	22.5	22.9	0.46
R61	26.1	20.4	20.6	0.22

1.3.2 Table 1.4 below reports PM<sub>10</sub> modelled concentrations at receptors in BCC for all the scenarios considered. No exceedances of the related air quality limit are predicted.

Table 1.4: Annual Mean Modelled PM<sub>10</sub> Concentrations (µg m<sup>-3</sup>) at Receptors in BCC for the Base Year (2013) and the Year of Opening (2021) for the Do-Minimum (DM) and Do-Something (DS) Scenarios

ID	Base Year 2013	2021 Annual Mean PM <sub>10</sub> [Defra TG(16) Methodology]		Impact (DS-DM)
		Do-Minimum	Do-Something	
R44	16.2	14.9	15.0	0.06
R45	16.3	15.0	15.1	0.11
R46	16.2	14.9	15.0	0.09
R47	15.9	14.6	14.7	0.07
R48	17.7	16.2	16.3	0.08
R49	19.2	17.4	17.4	0.06
R50	21.0	19.1	19.1	0.05
R51	20.5	18.5	18.6	0.05
R52	19.2	17.3	17.3	0.05
R53	19.8	17.7	17.8	0.04
R54	18.2	16.6	16.7	0.05
R55	18.2	16.6	16.6	0.04
R56	18.9	16.7	16.7	0.01
R57	17.7	16.3	16.3	0.02
R58	17.7	16.3	16.3	0.03
R59	17.3	16.0	16.0	0.06
R60	17.8	16.4	16.4	0.04
R61	17.4	16.0	16.0	0.02