

Roads and Maritime Services

TRAQ: Emissions and Air Quality Screening Assessment Report (Version 1.3)

Date of report: 16-Jun-2022 16:12
 User name: rbrowell

INPUT DATA

Simulation name	2021 Base Case										
Road type	Arterial										
Traffic data	Traffic per day	Speed (km/h)	Grade (%)	Length (km)							
Lane 1	18000	60	0	1.5							
Lane 2	18000	60	0	1.5							
Median strip	none										
Traffic mix (%)	CP	CD	LDCP	LDCD	HDCP	RT	AT	BusD	MC		
Lane 1	75.6	2.2	9.6	3.2	0.2	5.3	2.7	0.6	0.6	Default	
Lane 2	75.6	2.2	9.6	3.2	0.2	5.3	2.7	0.6	0.6	Default	
24-hour average speed	36	Default									
Peak hour percentage of daily (%)	10										
Year of assessment	2021										
Local landuse	Residential										
Air quality environment	Wallsend										
Season	Worst-case	Default									
Cold start emissions	Included	Default									

METEOROLOGICAL CONDITIONS

Wind direction	Worst-case wind angle
Wind speed	1 m/s
Atmospheric stability	F class (stable night time conditions)
Temperature	15 deg C

EMISSIONS (Air Pollutants)

	g/km/v	g/km/v	g/km/v	kg/h	kg/h	kg/h
	CO	NOx	PM10	CO	NOx	PM10
Lane 1	0.96	0.34	0.05	2.6	0.92	0.14
Lane 2	0.96	0.34	0.05	2.6	0.92	0.14

EMISSIONS (Greenhouse Gases)

	Fuel consumption (L/h)		CO2-e emission factors (kg/L)		CO2-e emissions (t CO2-e/h)	CO2-e emissions (t CO2-e/y)
	Petrol	Diesel	Petrol	Diesel		
Lane 1	175.8	100.2	2.38032	2.69814	0.7	2514.2
Lane 2	175.8	100.2	2.38032	2.69814	0.7	2514.2
					1.4	5028.3

PREDICTED ROADSIDE CONCENTRATIONS AND ASSESSMENT

Maximum 1-hour average CO concentrations (mg/m3)					
Receptor location	Due to roadway	Background	Cumulative	Criteria	Assessment
At kerb (0 m)	0.9	0.3	1.2	30	Compliance
10 m from kerb	0.3	0.3	0.6	30	Compliance
20 m from kerb	0.2	0.3	0.5	30	Compliance
30 m from kerb	0.2	0.3	0.5	30	Compliance
40 m from kerb	0.2	0.3	0.5	30	Compliance
50 m from kerb	0.1	0.3	0.4	30	Compliance

75 m from kerb	0.1	0.3	0.4	30	Compliance
100 m from kerb	0.1	0.3	0.4	30	Compliance
150 m from kerb	0.1	0.3	0.4	30	Compliance
200 m from kerb	0.1	0.3	0.4	30	Compliance

Maximum 8-hour average CO concentrations (mg/m3)

Receptor location	Due to roadway	Background	Cumulative	Criteria	Assessment
At kerb (0 m)	0.7	0.3	1.0	10	Compliance
10 m from kerb	0.2	0.3	0.5	10	Compliance
20 m from kerb	0.2	0.3	0.5	10	Compliance
30 m from kerb	0.1	0.3	0.4	10	Compliance
40 m from kerb	0.1	0.3	0.4	10	Compliance
50 m from kerb	0.1	0.3	0.4	10	Compliance
75 m from kerb	0.1	0.3	0.4	10	Compliance
100 m from kerb	0.1	0.3	0.4	10	Compliance
150 m from kerb	0.1	0.3	0.4	10	Compliance
200 m from kerb	0	0.3	0.3	10	Compliance

Maximum 1-hour average NO2 concentrations (ug/m3)

Receptor location	Due to roadway	Background	Cumulative	Criteria	Assessment
At kerb (0 m)	32.9	1.2	34.1	246	Compliance
10 m from kerb	17.1	1.2	18.3	246	Compliance
20 m from kerb	15.5	1.2	16.7	246	Compliance
30 m from kerb	12.5	1.2	13.7	246	Compliance
40 m from kerb	10.8	1.2	12.0	246	Compliance
50 m from kerb	9.6	1.2	10.8	246	Compliance
75 m from kerb	7.8	1.2	9.0	246	Compliance
100 m from kerb	6.7	1.2	7.9	246	Compliance
150 m from kerb	5.4	1.2	6.6	246	Compliance
200 m from kerb	4.5	1.2	5.7	246	Compliance

Annual average NO2 concentrations (ug/m3)

Receptor location	Due to roadway	Background	Cumulative	Criteria	Assessment
At kerb (0 m)	6.6	0.5	7.1	62	Compliance
10 m from kerb	3.4	0.5	3.9	62	Compliance
20 m from kerb	3.1	0.5	3.6	62	Compliance
30 m from kerb	2.5	0.5	3.0	62	Compliance
40 m from kerb	2.2	0.5	2.7	62	Compliance
50 m from kerb	1.9	0.5	2.4	62	Compliance
75 m from kerb	1.6	0.5	2.1	62	Compliance
100 m from kerb	1.3	0.5	1.8	62	Compliance
150 m from kerb	1.1	0.5	1.6	62	Compliance
200 m from kerb	0.9	0.5	1.4	62	Compliance

Maximum 24-hour average PM10 concentrations (ug/m3)

Receptor location	Due to roadway	Background	Cumulative	Criteria	Assessment
At kerb (0 m)	25.7	20.8	46.5	50	Non-compliance
10 m from kerb	8.9	20.8	29.7	50	Compliance
20 m from kerb	6.1	20.8	26.9	50	Compliance
30 m from kerb	4.9	20.8	25.7	50	Compliance
40 m from kerb	4.2	20.8	25.0	50	Compliance
50 m from kerb	3.7	20.8	24.5	50	Compliance
75 m from kerb	3	20.8	23.8	50	Compliance
100 m from kerb	2.6	20.8	23.4	50	Compliance
150 m from kerb	2.1	20.8	22.9	50	Compliance
200 m from kerb	1.7	20.8	22.5	50	Compliance

Annual average PM10 concentrations (ug/m3)

Receptor location	Due to roadway	Background	Cumulative	Criteria	Assessment
At kerb (0 m)	10.3	14.2	24.5	25	Compliance
10 m from kerb	3.6	14.2	17.8	25	Compliance
20 m from kerb	2.4	14.2	16.6	25	Compliance
30 m from kerb	2	14.2	16.2	25	Compliance
40 m from kerb	1.7	14.2	15.9	25	Compliance
50 m from kerb	1.5	14.2	15.7	25	Compliance
75 m from kerb	1.2	14.2	15.4	25	Compliance
100 m from kerb	1.1	14.2	15.3	25	Compliance
150 m from kerb	0.8	14.2	15.0	25	Compliance
200 m from kerb	0.7	14.2	14.9	25	Compliance

END OF REPORT

Roads and Maritime Services

TRAQ: Emissions and Air Quality Screening Assessment Report (Version 1.3)

Date of report: 16-Sep-2022 10:52
 User name: ppandey

INPUT DATA

Simulation name	2037 Base Case											
Road type	Arterial											
Traffic data	Traffic per day	Speed (km/h)	Grade (%)	Length (km)								
Lane 1	22202	60	0	1.5								
Lane 2	22202	60	0	1.5								
Median strip	none											
Traffic mix (%)	CP	CD	LDCP	LDCD	HDCP	RT	AT	BusD	MC			
Lane 1	75.6	2.2	9.6	3.2	0.2	5.3	2.7	0.6	0.6	Default		
Lane 2	75.6	2.2	9.6	3.2	0.2	5.3	2.7	0.6	0.6	Default		
24-hour average speed	35.5	Default										
Peak hour percentage of daily (%)	10											
Year of assessment	2036											
Local landuse	Residential											
Air quality environment	Newcastle / Wallsend											
Season	Worst-case	Default										
Cold start emissions	Included	Default										

METEOROLOGICAL CONDITIONS

Wind direction	Worst-case wind angle
Wind speed	1 m/s
Atmospheric stability	F class (stable night time conditions)
Temperature	15 deg C

EMISSIONS (Air Pollutants)

	g/km/v	g/km/v	g/km/v	kg/h	kg/h	kg/h
	CO	NOx	PM10	CO	NOx	PM10
Lane 1	0.78	0.18	0.05	2.58	0.61	0.17
Lane 2	0.78	0.18	0.05	2.58	0.61	0.17

EMISSIONS (Greenhouse Gases)

	Fuel consumption (L/h)		CO2-e emission factors (kg/L)		CO2-e emissions (t CO2-e/h)	CO2-e emissions (t CO2-e/y)
	Petrol	Diesel	Petrol	Diesel		
Lane 1	196.8	121.5	2.38032	2.69814	0.8	2906.4
Lane 2	196.8	121.5	2.38032	2.69814	0.8	2906.4
					1.6	5812.8

PREDICTED ROADSIDE CONCENTRATIONS AND ASSESSMENT

Maximum 1-hour average CO concentrations (mg/m3)					
Receptor location	Due to roadway	Background	Cumulative	Criteria	Assessment
At kerb (0 m)	0.9	0.3	1.2	30	Compliance
10 m from kerb	0.3	0.3	0.6	30	Compliance
20 m from kerb	0.2	0.3	0.5	30	Compliance
30 m from kerb	0.2	0.3	0.5	30	Compliance
40 m from kerb	0.1	0.3	0.4	30	Compliance
50 m from kerb	0.1	0.3	0.4	30	Compliance

75 m from kerb	0.1	0.3	0.4	30	Compliance
100 m from kerb	0.1	0.3	0.4	30	Compliance
150 m from kerb	0.1	0.3	0.4	30	Compliance
200 m from kerb	0.1	0.3	0.4	30	Compliance

Maximum 8-hour average CO concentrations (mg/m3)

Receptor location	Due to roadway	Background	Cumulative	Criteria	Assessment
At kerb (0 m)	0.6	0.3	0.9	10	Compliance
10 m from kerb	0.2	0.3	0.5	10	Compliance
20 m from kerb	0.1	0.3	0.4	10	Compliance
30 m from kerb	0.1	0.3	0.4	10	Compliance
40 m from kerb	0.1	0.3	0.4	10	Compliance
50 m from kerb	0.1	0.3	0.4	10	Compliance
75 m from kerb	0.1	0.3	0.4	10	Compliance
100 m from kerb	0.1	0.3	0.4	10	Compliance
150 m from kerb	0	0.3	0.3	10	Compliance
200 m from kerb	0	0.3	0.3	10	Compliance

Maximum 1-hour average NO2 concentrations (ug/m3)

Receptor location	Due to roadway	Background	Cumulative	Criteria	Assessment
At kerb (0 m)	21.2	1.2	22.4	246	Compliance
10 m from kerb	10.7	1.2	11.9	246	Compliance
20 m from kerb	9.6	1.2	10.8	246	Compliance
30 m from kerb	7.7	1.2	8.9	246	Compliance
40 m from kerb	6.6	1.2	7.8	246	Compliance
50 m from kerb	5.9	1.2	7.1	246	Compliance
75 m from kerb	4.8	1.2	6.0	246	Compliance
100 m from kerb	4.1	1.2	5.3	246	Compliance
150 m from kerb	3.3	1.2	4.5	246	Compliance
200 m from kerb	2.8	1.2	4.0	246	Compliance

Annual average NO2 concentrations (ug/m3)

Receptor location	Due to roadway	Background	Cumulative	Criteria	Assessment
At kerb (0 m)	4.2	0.5	4.7	62	Compliance
10 m from kerb	2.1	0.5	2.6	62	Compliance
20 m from kerb	1.9	0.5	2.4	62	Compliance
30 m from kerb	1.5	0.5	2.0	62	Compliance
40 m from kerb	1.3	0.5	1.8	62	Compliance
50 m from kerb	1.2	0.5	1.7	62	Compliance
75 m from kerb	1	0.5	1.5	62	Compliance
100 m from kerb	0.8	0.5	1.3	62	Compliance
150 m from kerb	0.7	0.5	1.2	62	Compliance
200 m from kerb	0.6	0.5	1.1	62	Compliance

Maximum 24-hour average PM10 concentrations (ug/m3)

Receptor location	Due to roadway	Background	Cumulative	Criteria	Assessment
At kerb (0 m)	28.7	20.8	49.5	50	Non-compliance
10 m from kerb	9.6	20.8	30.4	50	Compliance
20 m from kerb	6.5	20.8	27.3	50	Compliance
30 m from kerb	5.2	20.8	26.0	50	Compliance
40 m from kerb	4.5	20.8	25.3	50	Compliance
50 m from kerb	4	20.8	24.8	50	Compliance
75 m from kerb	3.2	20.8	24.0	50	Compliance
100 m from kerb	2.8	20.8	23.6	50	Compliance
150 m from kerb	2.3	20.8	23.1	50	Compliance
200 m from kerb	1.9	20.8	22.7	50	Compliance

Annual average PM10 concentrations (ug/m3)

Receptor location	Due to roadway	Background	Cumulative	Criteria	Assessment
At kerb (0 m)	11.5	14.2	25.7	25	Non-compliance
10 m from kerb	3.9	14.2	18.1	25	Compliance
20 m from kerb	2.6	14.2	16.8	25	Compliance
30 m from kerb	2.1	14.2	16.3	25	Compliance
40 m from kerb	1.8	14.2	16.0	25	Compliance
50 m from kerb	1.6	14.2	15.8	25	Compliance
75 m from kerb	1.3	14.2	15.5	25	Compliance
100 m from kerb	1.1	14.2	15.3	25	Compliance
150 m from kerb	0.9	14.2	15.1	25	Compliance
200 m from kerb	0.8	14.2	15.0	25	Compliance

END OF REPORT

Roads and Maritime Services

TRAQ: Emissions and Air Quality Screening Assessment Report (Version 1.3)

Date of report: 16-Sep-2022 10:53
 User name: ppandey

INPUT DATA

Simulation name	2037 Project Case										
Road type	Arterial										
Traffic data	Traffic per day	Speed (km/h)	Grade (%)	Length (km)							
Lane 1	22841	60	0	1.5							
Lane 2	22841	60	0	1.5							
Median strip	none										
Traffic mix (%)	CP	CD	LDCP	LDCD	HDCP	RT	AT	BusD	MC		
Lane 1	75.6	2.2	9.6	3.2	0.2	5.3	2.7	0.6	0.6	Default	
Lane 2	75.6	2.2	9.6	3.2	0.2	5.3	2.7	0.6	0.6	Default	
24-hour average speed	35.5	Default									
Peak hour percentage of daily (%)	10										
Year of assessment	2036										
Local landuse	Residential										
Air quality environment	Newcastle / Wallsend										
Season	Worst-case	Default									
Cold start emissions	Included	Default									

METEOROLOGICAL CONDITIONS

Wind direction	Worst-case wind angle
Wind speed	1 m/s
Atmospheric stability	F class (stable night time conditions)
Temperature	15 deg C

EMISSIONS (Air Pollutants)

	g/km/v	g/km/v	g/km/v	kg/h	kg/h	kg/h
	CO	NOx	PM10	CO	NOx	PM10
Lane 1	0.78	0.18	0.05	2.66	0.63	0.17
Lane 2	0.78	0.18	0.05	2.66	0.63	0.17

EMISSIONS (Greenhouse Gases)

	Fuel consumption (L/h)		CO2-e emission factors (kg/L)		CO2-e emissions (t CO2-e/h)	CO2-e emissions (t CO2-e/y)
	Petrol	Diesel	Petrol	Diesel		
Lane 1	202.5	125	2.38032	2.69814	0.8	2990.4
Lane 2	202.5	125	2.38032	2.69814	0.8	2990.4
					1.6	5980.8

PREDICTED ROADSIDE CONCENTRATIONS AND ASSESSMENT

Maximum 1-hour average CO concentrations (mg/m3)					
Receptor location	Due to roadway	Background	Cumulative	Criteria	Assessment
At kerb (0 m)	0.9	0.3	1.2	30	Compliance
10 m from kerb	0.3	0.3	0.6	30	Compliance
20 m from kerb	0.2	0.3	0.5	30	Compliance
30 m from kerb	0.2	0.3	0.5	30	Compliance
40 m from kerb	0.1	0.3	0.4	30	Compliance
50 m from kerb	0.1	0.3	0.4	30	Compliance

75 m from kerb	0.1	0.3	0.4	30	Compliance
100 m from kerb	0.1	0.3	0.4	30	Compliance
150 m from kerb	0.1	0.3	0.4	30	Compliance
200 m from kerb	0.1	0.3	0.4	30	Compliance

Maximum 8-hour average CO concentrations (mg/m3)

Receptor location	Due to roadway	Background	Cumulative	Criteria	Assessment
At kerb (0 m)	0.6	0.3	0.9	10	Compliance
10 m from kerb	0.2	0.3	0.5	10	Compliance
20 m from kerb	0.1	0.3	0.4	10	Compliance
30 m from kerb	0.1	0.3	0.4	10	Compliance
40 m from kerb	0.1	0.3	0.4	10	Compliance
50 m from kerb	0.1	0.3	0.4	10	Compliance
75 m from kerb	0.1	0.3	0.4	10	Compliance
100 m from kerb	0.1	0.3	0.4	10	Compliance
150 m from kerb	0	0.3	0.3	10	Compliance
200 m from kerb	0	0.3	0.3	10	Compliance

Maximum 1-hour average NO2 concentrations (ug/m3)

Receptor location	Due to roadway	Background	Cumulative	Criteria	Assessment
At kerb (0 m)	21.7	1.2	22.9	246	Compliance
10 m from kerb	10.9	1.2	12.1	246	Compliance
20 m from kerb	9.8	1.2	11.0	246	Compliance
30 m from kerb	7.8	1.2	9.0	246	Compliance
40 m from kerb	6.7	1.2	7.9	246	Compliance
50 m from kerb	6	1.2	7.2	246	Compliance
75 m from kerb	4.9	1.2	6.1	246	Compliance
100 m from kerb	4.2	1.2	5.4	246	Compliance
150 m from kerb	3.4	1.2	4.6	246	Compliance
200 m from kerb	2.9	1.2	4.1	246	Compliance

Annual average NO2 concentrations (ug/m3)

Receptor location	Due to roadway	Background	Cumulative	Criteria	Assessment
At kerb (0 m)	4.3	0.5	4.8	62	Compliance
10 m from kerb	2.2	0.5	2.7	62	Compliance
20 m from kerb	2	0.5	2.5	62	Compliance
30 m from kerb	1.6	0.5	2.1	62	Compliance
40 m from kerb	1.3	0.5	1.8	62	Compliance
50 m from kerb	1.2	0.5	1.7	62	Compliance
75 m from kerb	1	0.5	1.5	62	Compliance
100 m from kerb	0.8	0.5	1.3	62	Compliance
150 m from kerb	0.7	0.5	1.2	62	Compliance
200 m from kerb	0.6	0.5	1.1	62	Compliance

Maximum 24-hour average PM10 concentrations (ug/m3)

Receptor location	Due to roadway	Background	Cumulative	Criteria	Assessment
At kerb (0 m)	29.4	20.8	50.2	50	Non-compliance
10 m from kerb	9.8	20.8	30.6	50	Compliance
20 m from kerb	6.6	20.8	27.4	50	Compliance
30 m from kerb	5.3	20.8	26.1	50	Compliance
40 m from kerb	4.5	20.8	25.3	50	Compliance
50 m from kerb	4	20.8	24.8	50	Compliance
75 m from kerb	3.3	20.8	24.1	50	Compliance
100 m from kerb	2.8	20.8	23.6	50	Compliance
150 m from kerb	2.3	20.8	23.1	50	Compliance
200 m from kerb	2	20.8	22.8	50	Compliance

Annual average PM10 concentrations (ug/m3)

Receptor location	Due to roadway	Background	Cumulative	Criteria	Assessment
At kerb (0 m)	11.8	14.2	26.0	25	Non-compliance
10 m from kerb	3.9	14.2	18.1	25	Compliance
20 m from kerb	2.6	14.2	16.8	25	Compliance
30 m from kerb	2.1	14.2	16.3	25	Compliance
40 m from kerb	1.8	14.2	16.0	25	Compliance
50 m from kerb	1.6	14.2	15.8	25	Compliance
75 m from kerb	1.3	14.2	15.5	25	Compliance
100 m from kerb	1.1	14.2	15.3	25	Compliance
150 m from kerb	0.9	14.2	15.1	25	Compliance
200 m from kerb	0.8	14.2	15.0	25	Compliance

END OF REPORT