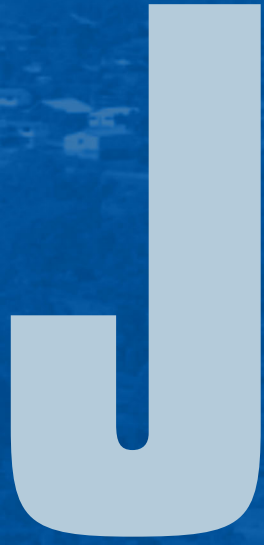


An aerial photograph of a highway interchange, overlaid with a semi-transparent blue filter. The highway has multiple lanes and a bridge section. The text is overlaid on this image.

# Gateway Upgrade Project



## Air Quality Section Supporting Information



# Gateway Upgrade Project

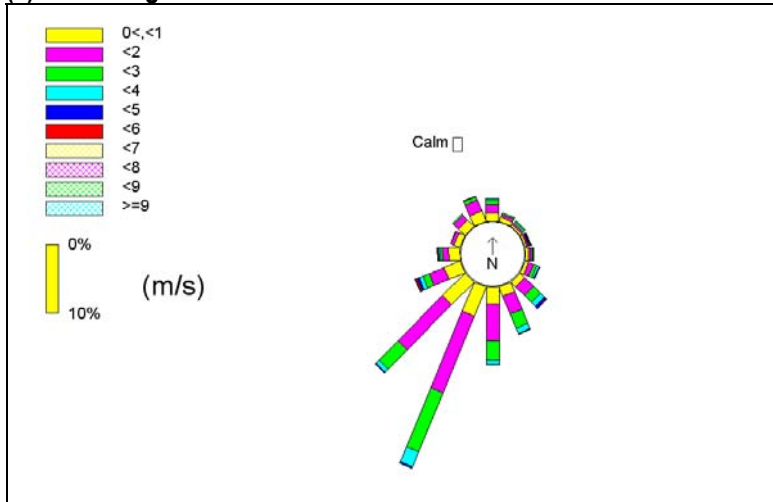
# U1

## Wind Roses

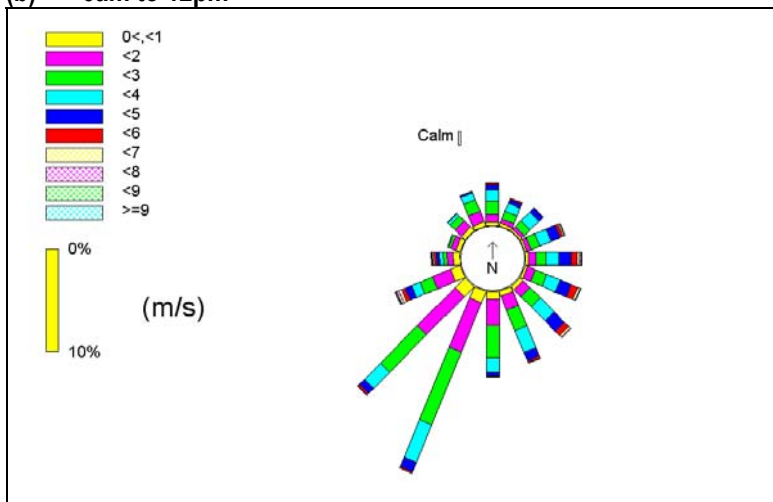
## Appendix J1 Wind Roses

Figure J1 Wind Rose by Hour of Day for the Eagle Farm EPA Monitoring Site (January 1997 to September 2003)

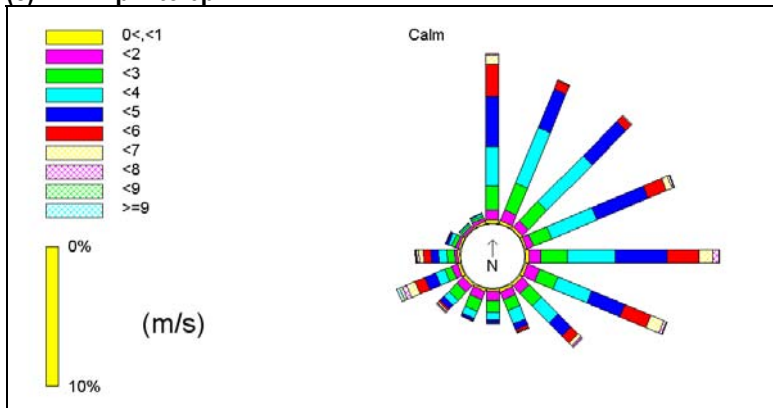
(a) Midnight to 6am



(b) 6am to 12pm



(c) 12 pm to 6pm



(d) 6pm to Midnight

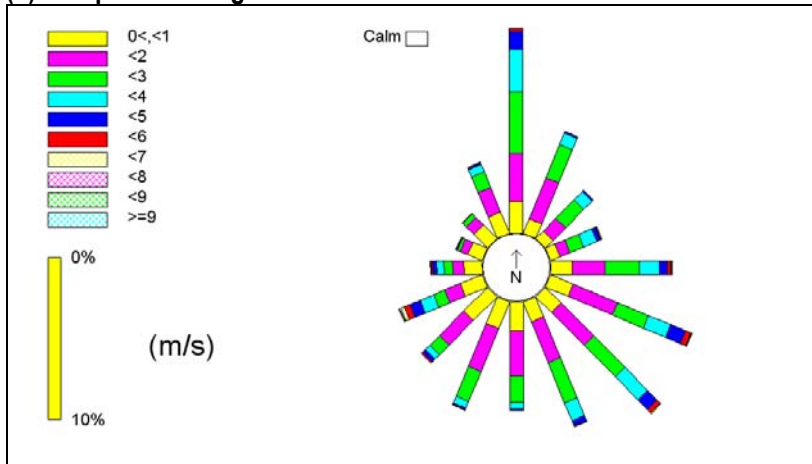
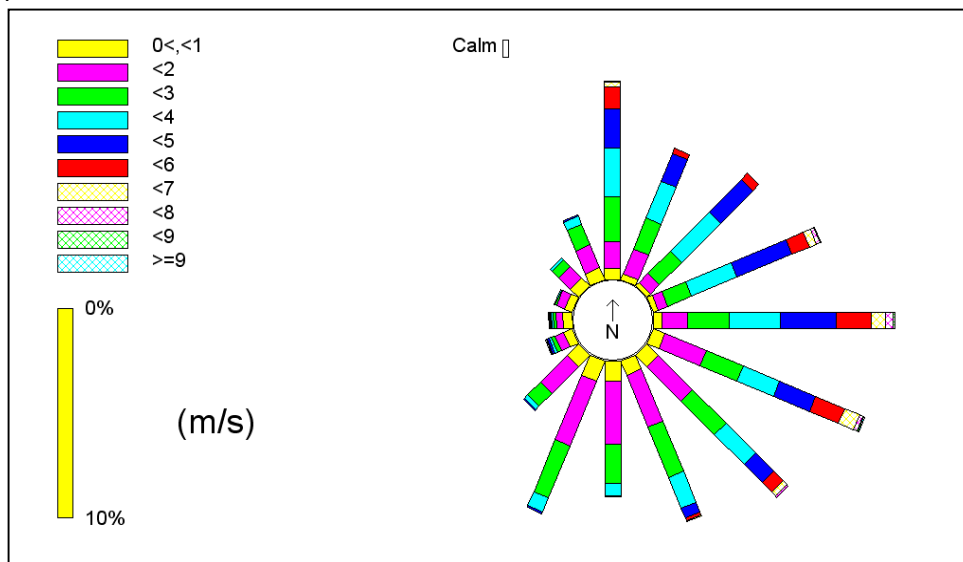
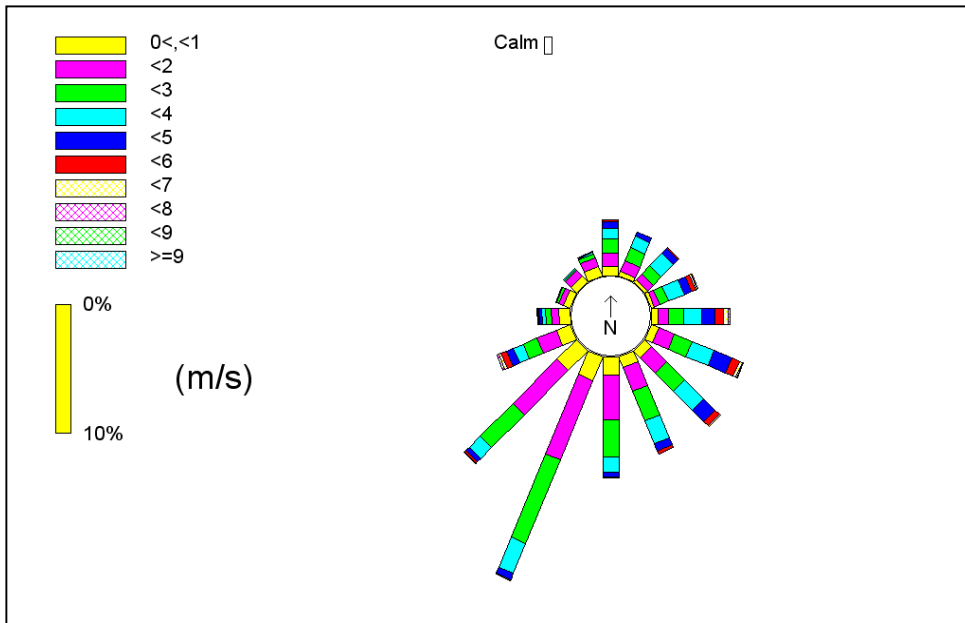


Figure J2 Wind Rose by Season for the Eagle Farm EPA Monitoring Site (January 1997 to September 2003)

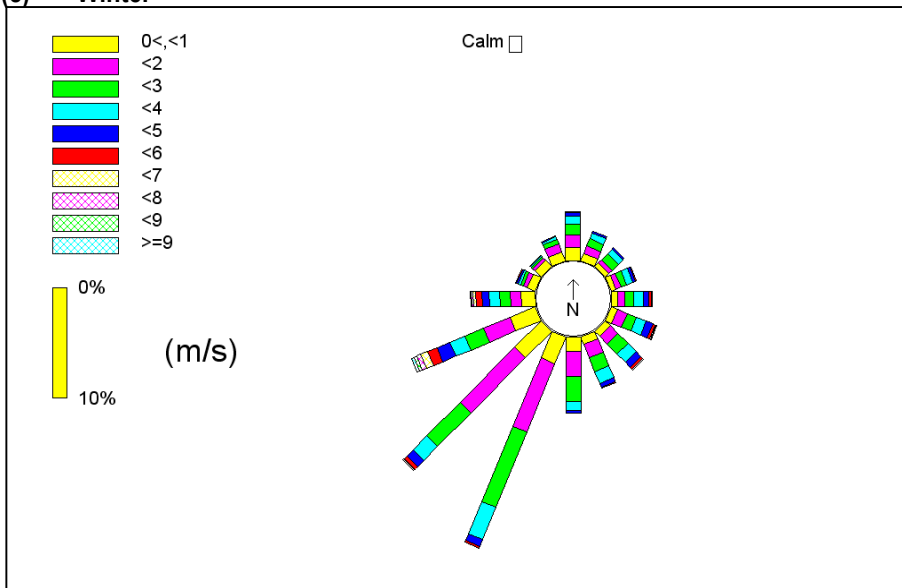
(a) Summer



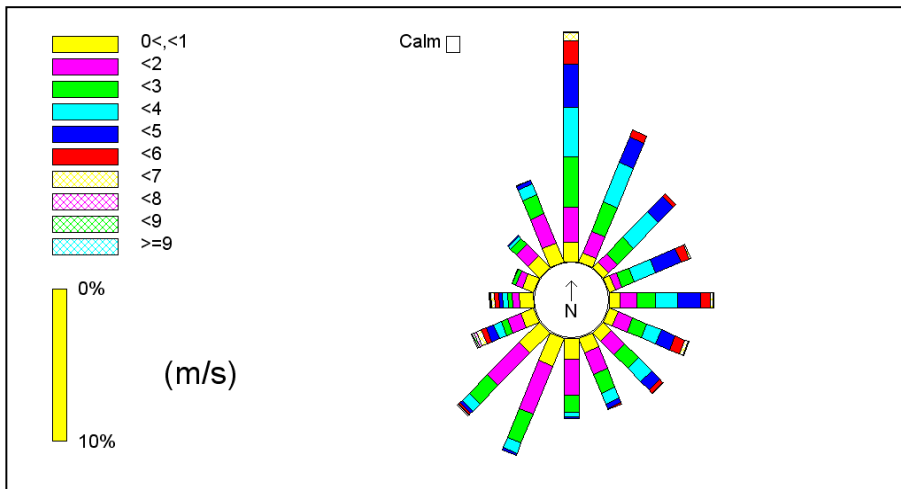
(b) Autumn



(c) Winter



(d) Spring



# J2

## Gateway Upgrade Project

### Pollutant Emissions Rates

## Appendix J2 Pollutant Emission Rates

**Table J1 Estimated Maximum Number of Vehicles and Pollutant Emission Rates for 2011 without GUP**

Road Section	No. Lanes	Maximum number vehicles in peak hour	Max percent of heavy vehicles	Maximum slope on road segment (%)	Emission Rate of Pollutant (g/veh/km)					
					NO <sub>x</sub>	CO	PM <sub>10</sub>	HC	Benz	1,3-But
<b>Gateway Motorway south of Gateway Bridge</b>										
Mt Gravatt-Capalaba Rd to Old Cleveland Rd	4	13271	13	5.00	1.30	11.7	0.051	2.89	0.12	0.014
Old Cleveland Rd to Wynnum Rd	4	12650	17	5.00	1.32	9.8	0.056	2.59	0.10	0.013
Wynnum Rd to Cleveland Branch Rail Line	4	11992	21	3.26	1.26	8.1	0.061	2.30	0.09	0.011
<b>Gateway Motorway north of Gateway Bridge</b>										
Gateway Bridge	6	16704	14	5.33	1.35	11.8	0.053	2.92	0.12	0.015
Gateway Bridge to Kingsford-Smith Drive	4	16704	14	2.00	1.56	45.8	0.053	7.66	0.31	0.038
Kingsford-Smith Drive to Airport Drive	4	14064	12	2.00	1.23	14.1	0.051	3.28	0.13	0.016
Airport Drive to Toombul Rd	4	12590	15	2.00	1.17	9.7	0.054	2.54	0.10	0.013
Toombul Rd to Northern Bifurcation	4	9692	17	2.00	1.00	4.9	0.057	1.53	0.06	0.008

**Table J2 Estimated Maximum Number of Vehicles and Pollutant Emission Rates for 2021 without GUP**

Road Section	No. Lanes	Maximum number vehicles in peak hour	Max percent of heavy vehicles	Maximum slope on road segment (%)	Emission Rate of Pollutant (g/veh/km)					
					NO <sub>x</sub>	CO	PM <sub>10</sub>	HC	Benz	1,3-But
<b>Gateway Motorway south of Gateway Bridge</b>										
Mt Gravatt-Capalaba Rd to Old Cleveland Rd	4	13446	15	5.00	0.43	3.6	0.037	2.40	0.10	0.012
Old Cleveland Rd to Wynnum Rd	4	12911	20	5.00	0.47	3.0	0.038	2.18	0.09	0.011
Wynnum Rd to Cleveland Branch Rail Line	4	12376	25	3.26	0.47	2.6	0.039	1.98	0.08	0.010



Road Section	No. Lanes	Maximum number vehicles in peak hour	Max percent of heavy vehicles	Maximum slope on road segment (%)	Emission Rate of Pollutant (g/veh/km)					
					NO <sub>x</sub>	CO	PM <sub>10</sub>	HC	Benz	1,3-But
<b>Gateway Motorway north of Gateway Bridge</b>										
Gateway Bridge	6	17973	17	5.33	0.47	4.3	0.038	2.76	0.11	0.014
Gateway Bridge to Kingsford-Smith Drive	4	17973	17	2.00	0.52	17.2	0.038	7.39	0.30	0.037
Kingsford-Smith Drive to Airport Drive	4	15009	12	2.00	0.40	5.2	0.037	3.10	0.12	0.016
Airport Drive to Toombul Rd	4	14002	16	2.00	0.41	4.0	0.038	2.61	0.10	0.013
Toombul Rd to Northern Bifurcation	4	10055	19	2.00	0.35	1.6	0.038	1.32	0.05	0.007

**Table J3 Estimated Maximum Number of Vehicles and Pollutant Emission Rates for 2011 with GUP**

Road Section	No. Lanes	Maximum number vehicles in peak hour	Max percent of heavy vehicles	Maximum slope on road segment (%)	Emission Rate of Pollutant (g/veh/km)					
					NO <sub>x</sub>	CO	PM <sub>10</sub>	HC	Benz	1,3-But
<b>Mt Gravatt – Capalaba Road to Cleveland Branch Rail Line</b>										
Mt Gravatt-Capalaba Rd to Old Cleveland Rd	6	16817	12	5.00	1.15	7.3	0.050	2.02	0.08	0.010
Old Cleveland Rd to Wynnum Rd	6	17382	15	5.00	1.22	7.8	0.054	2.16	0.09	0.011
Wynnum Rd to Cleveland Branch Rail Line	8	17278	18	3.26	1.02	3.9	0.057	1.30	0.05	0.006
<b>Cleveland Branch Rail Line to Pinkenba Rail Line</b>										
Gateway Bridge to Southern Bifurcation	12	21869	13	5.33	1.05	4.6	0.052	1.43	0.06	0.007
Southern Bifurcation to Pinkenba Rail Line	4	8310	11	3.45	0.94	3.9	0.050	1.23	0.05	0.006
<b>Pinkenba Rail Line to Nudgee Golf Course</b>										
Pinkenba Rail Line to Northern BAC access	4	8310	11	4.00	0.96	3.9	0.050	1.23	0.05	0.006
Northern BAC access to Northern Bifurcation	4	7886	14	0.41	0.84	3.4	0.052	1.14	0.05	0.006
Northern Bifurcation to Nudgee Rd	4	11334	15	0.41	1.01	7.3	0.054	2.03	0.08	0.010
<b>Existing Gateway Motorway</b>										
Southern Bifurcation to Kingsford-Smith Drive	6	13560	16	2.00	1.07	6.7	0.056	1.93	0.08	0.010
Kingsford-Smith Drive to Airport Drive	4	11895	12	2.00	1.08	8.5	0.051	2.26	0.09	0.011
Airport Drive to Toombul Rd	4	9363	15	2.00	0.96	4.7	0.054	1.45	0.06	0.007
Toombul Rd to Northern Bifurcation	4	3816	20	2.00	1.16	2.1	0.060	0.84	0.03	0.004

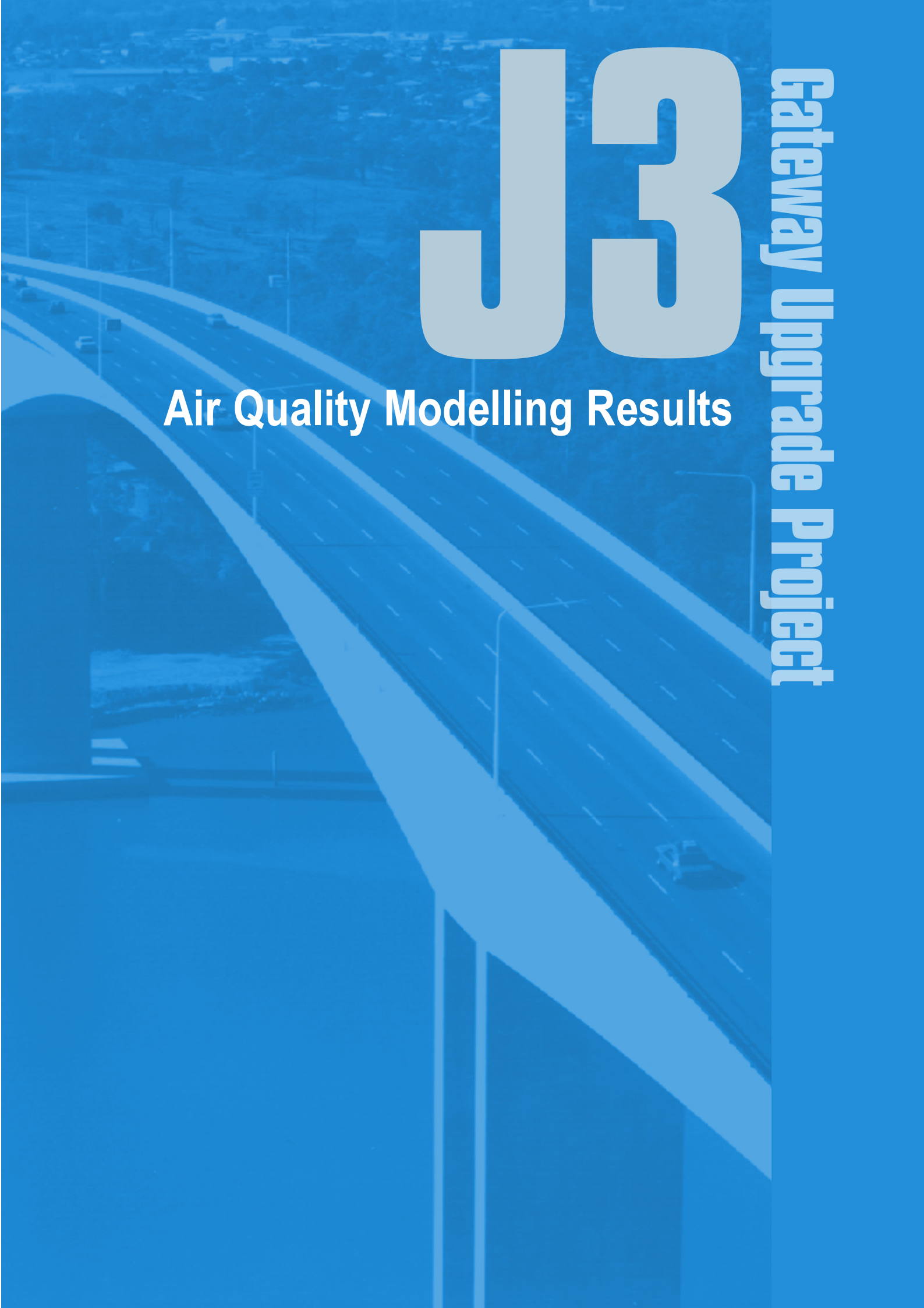
**Table J4 Estimated Maximum Number of Vehicles and Pollutant Emission Rates for 2021 with GUP**

Road Section	No. Lanes	Maximum number vehicles in peak hour	Max percent of heavy vehicles	Maximum slope on road segment (%)	Emission Rate of Pollutant (g/veh/km)					
					NO <sub>x</sub>	CO	PM <sub>10</sub>	HC	Benz	1,3-But
<b>Mt Gravatt–Capalaba Road to Cleveland Branch Rail Line</b>										
Mt Gravatt-Capalaba Rd to Old Cleveland Rd	6	17890	13	5.00	0.39	2.6	0.037	1.85	0.07	0.009
Old Cleveland Rd to Wynnum Rd	6	18698	17	5.00	0.43	2.8	0.038	2.03	0.08	0.010
Wynnum Rd to Cleveland Branch Rail Line	8	19748	19	3.26	0.37	1.5	0.038	1.29	0.05	0.006
<b>Cleveland Branch Rail Line to Pinkenba Rail Line</b>										
Gateway Bridge to Southern Bifurcation	12	26406	15	5.33	0.38	1.9	0.037	1.51	0.06	0.008
Southern Bifurcation to Pinkenba Rail Line	4	10742	10	3.45	0.32	2.0	0.037	1.50	0.06	0.007
<b>Pinkenba Railway Line to Nudgee Golf Course</b>										
Pinkenba Rail Line to Northern BAC access	4	10742	10	4.00	0.32	2.0	0.037	1.50	0.06	0.007
Northern BAC access to Northern Bifurcation	4	10102	13	0.41	0.29	1.7	0.037	1.32	0.05	0.007
Northern Bifurcation to Nudgee Rd	4	13162	15	0.41	0.36	3.3	0.037	2.26	0.09	0.011
<b>Existing Gateway Motorway</b>										
Southern Bifurcation to Kingsford-Smith Drive	6	15664	19	2.00	0.40	2.8	0.038	2.05	0.08	0.010
Kingsford-Smith Drive to Airport Drive	4	13475	13	2.00	0.38	3.7	0.037	2.40	0.10	0.012
Airport Drive to Toombul Rd	4	10419	15	2.00	0.33	1.8	0.037	1.41	0.06	0.007
Toombul Rd to Northern Bifurcation	4	3365	22	2.00	0.43	0.63	0.038	0.67	0.03	0.003

# J3

## Gateway Upgrade Project

### Air Quality Modelling Results



## Appendix J3 Air Quality Modelling Results

**Table J5 Predicted Maximum Concentrations ( $\mu\text{g}/\text{m}^3$ ) for Various Pollutants at each Receptor Location for 2011 without GUP (Mt Gravatt-Capalaba Road to Cleveland Branch Rail Line)**

Receptor	NO <sub>2</sub> 1 hour average	CO 8 hour average	PM <sub>10</sub> 24 hour average	TSP annual average	Benzene annual average	1,3- butadiene 3 minute average	HC 1 hour average
Mt Petrie Road	51.4	350.0	1.3	0.14	0.2	3.6	391.6
Sandringham St	18.5	225.0	0.4	0.14	0.2	1.7	183.2
Weedon St West	78.2	1341.3	3.6	1.25	1.8	11.2	1228.6
Weedon St East	77.4	1575.0	5.6	1.93	2.9	10.3	1132.0
Wecker Rd	30.2	297.5	0.8	0.30	0.4	1.9	212.7
Silky Oak Cr	56.2	1200.0	3.7	1.54	2.3	7.5	822.8
Coventry Ct	104.8	2233.8	6.7	2.86	4.2	13.9	1532.2
Hereford Cr	43.5	992.5	2.8	1.18	1.7	5.8	638.3
Kenilworth Pl	55.9	658.8	1.8	0.78	1.1	3.7	407.9
Ridgeview St	50.6	1256.3	3.8	1.61	2.3	6.7	739.3
Mt Petrie Road 2	61.3	1337.5	4.7	1.33	2.0	8.2	903.3
Old Cleveland Road	47.8	830.0	2.4	1.05	1.3	6.9	761.9
Cross St	67.4	1390.0	6.4	1.72	2.3	8.3	910.5
Palm Lakes Tourist	83.7	1605.0	6.2	2.99	3.7	10.6	1166.1
Belmont Road	82.8	1907.5	8.4	2.09	2.7	11.0	1205.3
Ambara St 1	86.0	1956.3	8.5	2.48	3.1	11.4	1253.2
Ambara St 2	98.9	2193.8	9.5	2.77	3.5	12.4	1361.7
Glenavon St	40.5	901.3	3.7	1.11	1.4	5.3	581.9
Helemon St	74.9	788.8	3.2	0.97	1.2	4.5	499.7
Brandella Pl	64.9	1513.8	6.4	1.99	2.5	8.1	887.8
Stanton Rd 1	76.6	987.5	4.0	1.00	1.3	5.6	615.9
Stanton Rd 2	98.5	1131.3	4.8	1.04	1.2	7.1	780.0
Wynnum Rd	67.0	820.0	3.3	1.31	1.4	8.1	888.0
Background	53	2,500	35	41	4.5	N/A	N/A
Maximum at a receptor including background	157.8	4,733.8	44.5	44.0	8.7	13.9	1,532.2
Guideline	320	10,000	150	90	16	1000	-

**Table J6 Predicted Maximum Concentrations ( $\mu\text{g}/\text{m}^3$ ) for Various Pollutants at each Receptor Location for 2021 without GUP (Mt Gravatt-Capalaba Road to Cleveland Branch Rail Line)**

Receptor	NO <sub>2</sub> 1 hour average	CO 8 hour average	PM <sub>10</sub> 24 hour average	TSP annual average	Benzene annual average	1,3- butadiene 3 minute average	HC 1 hour average
Mt Petrie Road	18.1	112.5	1.0	0.10	0.2	3.1	339.5
Sandringham St	6.4	68.8	0.3	0.10	0.2	1.6	170.4
Weedon St West	26.4	413.8	2.6	0.91	1.5	9.5	1041.5
Weedon St East	26.1	486.3	4.1	1.41	2.5	8.8	971.7
Wecker Rd	9.8	88.8	0.6	0.22	0.4	1.7	182.8
Silky Oak Cr	19.0	371.3	2.7	1.13	1.9	6.4	706.2
Coventry Ct	35.4	691.3	4.9	2.10	3.6	12.0	1315.7
Hereford Cr	14.7	306.3	2.1	0.87	1.5	5.0	547.3
Kenilworth Pl	18.9	205.0	1.3	0.57	1.0	3.2	350.3
Ridgeview St	17.1	390.0	2.7	1.18	2.0	5.8	635.0
Mt Petrie Road 2	21.0	412.5	3.4	0.98	1.7	7.0	774.2
Old Cleveland Road	15.5	257.5	1.7	0.74	1.1	5.8	638.6
Cross St	25.8	437.5	4.4	1.20	1.9	7.1	777.0
Palm Lakes Tourist	31.5	506.3	4.3	2.07	3.2	9.0	988.8
Belmont Road	32.1	600.0	5.8	1.45	2.3	9.6	1054.0
Ambara St 1	29.4	617.5	5.9	1.72	2.7	9.9	1088.0
Ambara St 2	33.7	692.5	6.6	1.92	3.0	10.6	1169.1
Glenavon St	14.1	288.8	2.5	0.77	1.2	4.6	508.6
Helemon St	25.7	252.5	2.2	0.67	1.1	4.0	438.6
Brandella Pl	22.2	483.8	4.4	1.38	2.2	6.9	758.1
Stanton Rd 1	29.9	326.3	2.7	0.69	1.1	5.1	555.3
Stanton Rd 2	39.7	373.8	3.2	0.70	1.1	6.4	703.7
Wynnum Rd	24.2	257.5	2.2	0.87	1.2	7.0	765.4
Background	53	2,500	35	41	4.5	N/A	N/A
Maximum at a receptor including background	92.7	3,192.5	41.6	43.1	8.1	12.0	1,315.7
Guideline	320	10,000	150	90	16	1000	-

**Table J7 Predicted Maximum Concentrations ( $\mu\text{g}/\text{m}^3$ ) for Various Pollutants at each Receptor Location for 2011 with GUP (Mt Gravatt-Capalaba Road to Cleveland Branch Rail Line)**

Receptor	NO <sub>2</sub> 1 hour average	CO 8 hour average	PM <sub>10</sub> 24 hour average	TSP annual average	Benzene annual average	1,3- butadiene 3 minute average	HC 1 hour average
Mt Petrie Road	57.5	276.3	1.7	0.18	0.2	3.0	327.5
Sandringham St	21.2	188.8	0.6	0.18	0.2	1.2	132.4
Weedon St West	88.8	1115.0	4.8	1.69	1.8	10.1	1114.3
Weedon St East	87.0	1255.0	7.4	2.58	2.8	9.4	1031.2
Wecker Rd	33.9	245.0	1.0	0.39	0.4	1.7	188.3
Silky Oak Cr	62.7	997.5	4.8	2.06	2.2	6.8	743.6
Coventry Ct	119.5	1906.3	8.9	3.93	4.2	12.9	1416.0
Hereford Cr	48.7	832.5	3.7	1.58	1.7	5.3	577.4
Kenilworth Pl	65.3	542.5	2.4	1.02	1.1	3.5	386.5
Ridgeview St	59.8	1037.5	5.0	2.16	2.3	6.2	685.1
Mt Petrie Road 2	75.9	1115.0	6.1	1.76	1.9	8.2	898.1
Old Cleveland Road	59.7	776.3	3.4	1.48	1.5	6.4	707.2
Cross St	94.4	1450.0	8.9	2.42	2.6	10.2	1119.2
Palm Lakes Tourist	112.8	1893.8	9.0	4.39	4.6	12.0	1321.4
Belmont Road	115.1	2080.0	11.6	2.98	3.3	12.5	1370.4
Ambara St 1	106.6	2138.8	11.9	3.59	3.9	12.8	1410.9
Ambara St 2	123.9	2406.3	13.3	4.04	4.3	14.2	1559.5
Glenavon St	51.3	881.3	5.0	1.56	1.6	5.4	598.7
Helemon St	92.2	745.0	4.3	1.35	1.4	5.2	572.3
Brandella Pl	82.3	1617.5	9.0	2.86	3.0	9.4	1029.7
Stanton Rd 1	86.7	682.5	5.5	1.41	1.4	4.6	501.0
Stanton Rd 2	113.5	643.8	6.8	1.51	1.3	5.6	620.5
Wynnum Rd	82.7	778.8	4.9	2.02	1.3	8.7	957.4
Background	53	2,500	35	41	4.5	N/A	N/A
Maximum at a receptor including background	176.9	4,906.3	48.3	45.4	9.1	14.2	1,559.5
Guideline	320	10,000	150	90	16	1000	-

**Table J8 Predicted Maximum Concentrations ( $\mu\text{g}/\text{m}^3$ ) for Various Pollutants at each Receptor Location for 2021 with GUP (Mt Gravatt-Capalaba Road to Cleveland Branch Rail Line)**

Receptor	NO <sub>2</sub> 1 hour average	CO 8 hour average	PM <sub>10</sub> 24 hour average	TSP annual average	Benzene annual average	1,3- butadiene 3 minute average	HC 1 hour average
Mt Petrie Road	21.5	105.0	1.3	0.14	0.2	3.1	336.7
Sandringham St	7.5	68.8	0.5	0.14	0.2	1.2	130.1
Weedon St West	30.6	417.5	3.8	1.33	1.7	10.0	1093.6
Weedon St East	31.2	463.8	5.8	2.03	2.7	9.4	1032.7
Wecker Rd	12.9	87.5	0.8	0.30	0.4	1.7	187.7
Silky Oak Cr	22.3	370.0	3.7	1.62	2.1	6.8	741.8
Coventry Ct	42.4	708.8	7.0	3.10	4.1	12.9	1412.3
Hereford Cr	17.3	310.0	2.9	1.24	1.6	5.2	576.1
Kenilworth Pl	23.1	200.0	1.9	0.80	1.0	3.5	385.5
Ridgeview St	22.5	383.8	3.9	1.70	2.2	6.2	683.3
Mt Petrie Road 2	27.5	411.3	4.8	1.38	1.9	8.2	903.1
Old Cleveland Road	21.3	303.8	2.6	1.13	1.6	6.4	706.1
Cross St	35.8	561.3	6.7	1.84	2.7	10.3	1136.4
Palm Lakes Tourist	42.2	737.5	6.8	3.32	4.7	12.1	1334.9
Belmont Road	43.3	806.3	8.8	2.26	3.3	12.7	1393.5
Ambara St 1	40.7	832.5	9.0	2.71	3.9	13.1	1435.0
Ambara St 2	45.0	938.8	10.1	3.05	4.4	14.4	1585.2
Glenavon St	18.4	345.0	3.8	1.18	1.7	5.5	605.1
Helemon St	33.4	290.0	3.3	1.02	1.5	5.3	579.4
Brandella Pl	30.9	632.5	6.8	2.16	3.1	9.5	1042.2
Stanton Rd 1	36.2	271.3	4.2	1.07	1.5	4.6	507.3
Stanton Rd 2	48.6	261.3	5.2	1.15	1.4	5.7	628.4
Wynnum Rd	31.5	316.3	3.7	1.54	1.5	9.1	994.7
Background	53	2,500	35	41	4.5	N/A	N/A
Maximum at a receptor including background	101.6	3,438.8	45.1	44.3	9.2	14.4	1,585.2
Guideline	320	10,000	150	90	16	1000	-

**Table J9 Predicted Maximum Concentrations ( $\mu\text{g}/\text{m}^3$ ) for Various Pollutants at each Receptor Location for 2011 without and with GUP (Cleveland Branch Rail Line to Pinkenba Rail Line)**

Receptor	NO <sub>2</sub> 1 hour average	CO 8 hour average	PM <sub>10</sub> 24 hour average	TSP annual average	Benzene annual average	1,3- butadiene 3 minute average	HC 1 hour average
<b>Without Gateway Upgrade</b>							
Bris TAFE campus	99.0	2038.8	3.6	1.00	1.9	10.0	1103.8
Background	53	2,500	35	41	4.5	N/A	N/A
Maximum at a receptor including background	152.0	4,538.8	38.6	42.0	6.4	10.0	1103.8
Guideline	320	10,000	150	90	16	1000	-
<b>With Gateway Upgrade</b>							
Bikeway 1	64.7	930.0	10.4	3.94	2.3	8.1	886.1
Bikeway 2	68.4	1076.3	11.3	3.98	2.3	7.9	864.0
Bikeway 3	128.4	2225.0	18.2	6.56	4.9	15.9	1742.0
Bikeway 4	103.9	1748.8	14.4	5.41	4.0	12.9	1413.7
Bikeway 5	107.3	1686.3	14.2	5.55	4.1	13.3	1462.7
Bikeway 6	110.4	1403.8	13.2	5.63	4.1	13.7	1506.4
Bikeway 7	73.6	718.8	8.9	3.04	1.7	9.1	1001.3
Bikeway 8	81.4	1150.0	13.6	4.36	2.4	8.5	933.9
Bris TAFE campus	68.2	565.0	3.2	0.92	0.9	3.9	426.2
Background	53	2,500	35	41	4.5	N/A	N/A
Maximum at a receptor including background	181.4	4,725	53.2	47.6	9.4	13.7	1,742.0
Guideline	320	10,000	150	90	16	1000	-



**Table J10 Predicted Maximum Concentrations ( $\mu\text{g}/\text{m}^3$ ) for Various Pollutants at each Receptor Location for 2021 without and with GUP (Cleveland Branch Rail Line to Pinkenba Rail Line)**

Receptor	NO <sub>2</sub> 1 hour average	CO 8 hour average	PM <sub>10</sub> 24 hour average	TSP annual average	Benzene annual average	1,3- butadiene 3 minute average	HC 1 hour average
<b>Without Gateway Upgrade</b>							
Bris TAFE campus	35.2	810.0	2.8	0.77	1.9	10.3	1129.0
Background	53	2,500	35	41	4.5	N/A	N/A
Maximum at a receptor including background	88.2	3,310.0	37.8	41.8	6.4	10.3	1,129.0
Guideline	320	10,000	150	90	16	1000	-
<b>With Gateway Upgrade</b>							
Bikeway 1	27.2	388.8	8.2	3.00	2.4	9.0	993.0
Bikeway 2	27.9	495.0	9.2	3.05	2.4	9.7	1064.6
Bikeway 3	54.2	1118.8	15.6	5.64	6.2	19.5	2139.3
Bikeway 4	43.9	877.5	12.3	4.65	5.1	15.8	1731.1
Bikeway 5	45.3	830.0	12.1	4.76	5.2	16.4	1798.9
Bikeway 6	46.7	711.3	10.9	4.82	5.2	16.9	1858.4
Bikeway 7	31.0	306.3	7.1	2.45	1.8	11.1	1217.7
Bikeway 8	34.0	463.8	10.9	3.47	2.3	9.0	989.6
Bris TAFE campus	28.4	270.0	2.7	0.77	1.1	4.8	523.0
Background	53	2,500	35	41	4.5	N/A	N/A
Maximum at a receptor including background	107.2	3,618.8	50.6	46.6	10.7	19.5	2,139.3
Guideline	320	10,000	150	90	16	1000	-

**Table J11 Predicted Maximum Concentrations ( $\mu\text{g}/\text{m}^3$ ) for Various Pollutants at each Receptor Location for 2011 without GUP (Pinkenba Rail Line to Nudgee Golf Course)**

Receptor	NO <sub>2</sub> 1 hour average	CO 8 hour average	PM <sub>10</sub> 24 hour average	TSP annual average	Benzene annual average	1,3- butadiene 3 minute average	HC 1 hour average
Viola PI south	48.4	742.5	0.7	0.23	0.6	5.4	592.7
Viola PI central	41.5	673.8	0.6	0.20	0.6	5.1	563.2
Viola PI north	28.3	573.8	0.5	0.14	0.4	3.8	414.5
Lomandra Dr north	31.6	305.0	0.4	0.09	0.2	2.7	292.0
Lomandra Dr south	28.5	295.0	0.4	0.11	0.2	2.4	262.7
Cassia PI	34.8	330.0	0.4	0.08	0.2	3.1	344.0
Auction house	65.6	1956.3	4.9	2.08	3.8	10.5	1155.2
Background	53	2,500	35	41	4.5	N/A	N/A
Maximum at a receptor including background	118.6	4,456.3	39.9	43.1	8.3	10.5	1,155.2
Guideline	320	10,000	150	90	16	1000	-

**Table J12 Predicted Maximum Concentrations ( $\mu\text{g}/\text{m}^3$ ) for Various Pollutants at each Receptor Location for 2021 without GUP (Pinkenba Rail Line to Nudgee Golf Course)**

Receptor	NO <sub>2</sub> 1 hour average	CO 8 hour average	PM <sub>10</sub> 24 hour average	TSP annual average	Benzene annual average	1,3- butadiene 3 minute average	HC 1 hour average
Viola PI south	18.3	300.0	0.5	0.17	0.6	5.6	616.9
Viola PI central	15.7	271.3	0.5	0.15	0.6	5.3	586.3
Viola PI north	10.5	221.3	0.4	0.11	0.4	3.9	431.4
Lomandra Dr north	11.8	110.0	0.3	0.07	0.2	2.4	267.7
Lomandra Dr south	10.7	112.5	0.3	0.08	0.2	2.5	272.9
Cassia PI	12.9	122.5	0.3	0.06	0.2	3.0	324.3
Auction house	21.1	765.0	3.8	1.62	3.8	10.5	1157.0
Background	53	2,500	35	41	4.5	N/A	N/A
Maximum at a receptor including background	74.1	3,265.0	38.8	42.6	8.3	10.5	1,157.0
Guideline	320	10,000	150	90	16	1000	-

**Table J13 Predicted Maximum Concentrations ( $\mu\text{g}/\text{m}^3$ ) for Various Pollutants at each Receptor Location for 2011 with GUP (Pinkenba Rail Line to Nudgee Golf Course)**

Receptor	NO <sub>2</sub> 1 hour average	CO 8 hour average	PM <sub>10</sub> 24 hour average	TSP annual average	Benzene annual average	1,3- butadiene 3 minute average	HC 1 hour average
Viola PI south	47.3	175.0	1.4	0.58	0.4	2.0	218.8
Viola PI central	41.2	158.8	1.3	0.49	0.3	1.8	193.7
Viola PI north	29.1	115.0	0.8	0.31	0.2	1.3	147.7
Lomandra Dr north	34.5	131.3	1.0	0.32	0.2	1.5	164.5
Lomandra Dr south	29.6	105.0	0.8	0.29	0.2	1.3	144.3
Cassia PI	77.5	235.0	1.3	0.28	0.2	3.2	350.5
Auction house	48.5	995.0	4.1	1.83	2.1	5.9	653.5
Background	53	2,500	35	41	4.5	N/A	N/A
Maximum at a receptor including background	130.5	3,495.0	39.1	42.8	6.6	5.9	653.5
Guideline	320	10,000	150	90	16	1000	-

**Table J14 Predicted Maximum Concentrations ( $\mu\text{g}/\text{m}^3$ ) for Various Pollutants at each Receptor Location for 2021 with GUP (Pinkenba Rail Line to Nudgee Golf Course)**

Receptor	NO <sub>2</sub> 1 hour average	CO 8 hour average	PM <sub>10</sub> 24 hour average	TSP annual average	Benzene annual average	1,3- butadiene 3 minute average	HC 1 hour average
Viola PI south	19.3	90.0	1.3	0.52	0.5	2.5	270.9
Viola PI central	16.8	80.0	1.1	0.43	0.4	2.3	254.6
Viola PI north	13.1	56.3	0.7	0.27	0.3	1.8	198.9
Lomandra Dr north	14.1	82.5	0.9	0.29	0.3	2.0	214.5
Lomandra Dr south	12.0	57.5	0.7	0.26	0.3	1.5	161.9
Cassia PI	32.7	136.3	1.2	0.25	0.3	4.2	464.7
Auction house	19.2	486.3	3.4	1.54	2.6	7.3	796.8
Background	53	2,500	35	41	4.5	N/A	N/A
Maximum at a receptor including background	85.7	2,986.3	38.4	42.5	7.1	7.3	796.8
Guideline	320	10,000	150	90	16	1000	-