Appendix 3.18d - Emission Rates of Portal, Top Openings and Ventilation Exhaust (Hr00-01)

Remarks (Tunnel name - Portal & top opening of underpass in EIA of Rd Works in WK)	WKCD section no.	Road name	Bound	Length (m) (from Rd Works EIA)	Total (veh/hr)	PC	taxi	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	Total	Rate (g/km-veh) PM	Rate (g/km-veh) NOx	Emission Rate (g/s) PM	Emission Rate (g/s) NOx
						Hr 00-01 (2015 EIA_19-12-2011.xls)																				
A(i)	73	Lin Cheung Rd (underpass)	Northbound	134	215	53%	0%	23%	0%	2%	2%	5%	5%	2%	2%	0%	0%	2%	2%	0%	0%	100%	0.0955238	1.2304077	0.0007645	0.0098467
B(i)	73	Lin Cheung Rd (underpass)	Northbound	225	215	53%	0%	23%	0%	2%	2%	5%	5%	2%	2%	0%	0%	2%	2%	0%	0%	100%	0.0955238	1.2304077	0.0012836	0.0165336
C(i)	73	Lin Cheung Rd (underpass)	Northbound	41	215	53%	0%	23%	0%	2%	2%	5%	5%	2%	2%	0%	0%	2%	2%	0%	0%	100%	0.0955238	1.2304077	0.0008044	0.0103611
D(i)	73	Lin Cheung Rd (underpass)	Northbound	77	215	53%	0%	23%	0%	2%	2%	5%	5%	2%	2%	0%	0%	2%	2%	0%	0%	100%	0.0955238	1.2304077	0.0010098	0.0130064
E(i)	72	Lin Cheung Rd (underpass)	Southbound	55	265	55%	0%	23%	0%	2%	2%	6%	4%	2%	2%	0%	0%	2%	2%	0%	2%	100%	0.0936651	1.1839523	0.0010687	0.0135086
F(i)	72	Lin Cheung Rd (depressed)	Southbound	146	265	55%	0%	23%	0%	2%	2%	6%	4%	2%	2%	0%	0%	2%	2%	0%	2%	100%	0.0936651	1.1839523	0.0010066	0.0127242
G (i)	118	Lin Cheung Rd (depressed)	Southbound	163	275	53%	2%	22%	0%	4%	2%	5%	4%	2%	2%	0%	0%	2%	2%	0%	2%	100%	0.0924976	1.2001108	0.0011517	0.0149430
H(i)	119	Austin Rd W (depressed)	Eastbound	74	435	32%	1%	51%	0%	1%	1%	5%	2%	1%	1%	0%	0%	0%	1%	1%	2%	100%	0.1342209	1.4577666	0.0012002	0.0130349
I(i)	117	Austin Rd W (depressed)	Eastbound	83	125	36%	0%	56%	0%	0%	0%	4%	4%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.1379285	1.2475830	0.0008764	0.0076274
J(i)	116	Austin Rd W (depressed)	Westbound	83	165	33%	0%	45%	0%	3%	3%	3%	3%	0%	0%	6%	0%	0%	3%	0%	0%	100%	0.1363135	1.5185645	0.0011433	0.0127370
K(i)	114	Lin Cheung Rd (depressed)	Southbound	46	50	70%	0%	30%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.0648138	0.5373284	0.0000594	0.0004926
L(i)	112	Lin Cheung Rd (depressed)	Northbound	66	260	54%	2%	23%	0%	2%	2%	6%	4%	2%	2%	0%	0%	2%	2%	0%	0%	100%	0.0950957	1.2108087	0.0004533	0.0057715
M(i)	84	Lin Cheung Rd	Southbound	60	230	54%	0%	24%	0%	2%	2%	4%	4%	2%	2%	0%	0%	2%	2%	0%	0%	100%	0.0939613	1.1887411	0.0003602	0.0045568
N(i)	77	Lin Cheung Rd	Northbound	60	410	52%	1%	22%	0%	2%	2%	5%	5%	2%	1%	1%	0%	2%	1%	0%	1%	100%	0.0963301	1.2034973	0.0006583	0.0082239
O(i)	111	Austin Rd W (depressed)	Eastbound	86	355	34%	1%	49%	0%	1%	1%	4%	3%	1%	0%	0%	0%	0%	1%	1%	1%	100%	0.1312810	1.4683894	0.0004660	0.0052128
P(i)	110	Austin Rd W (depressed)	Westbound	86	205	32%	0%	49%	0%	2%	2%	5%	2%	0%	0%	0%	0%	0%	2%	2%	2%	100%	0.1373062	1.7179691	0.0002815	0.0035218
W(i)	98	West Kowloon Highway (WKH)	Northbound	970	1145	55%	0%	14%	0%	3%	2%	5%	4%	3%	2%	2%	0%	4%	2%	3%	0%	100%	0.0546631	1.4126668	0.0342503	0.8851339
	A	Internal Rd A	Bothbound	404.2035	40	50%	0%	25%	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	0%	100%	0.1480281	1.3796668	0.0006648	0.0061963
	B	Internal Rd B	Bothbound	361.166	65	38%	0%	31%	0%	0%	0%	0%	8%	0%	0%	23%	0%	0%	0%	0%	0%	100%	0.1676717	1.5226167	0.0010934	0.0099291
	C	Internal Rd C	Bothbound	520.836	30	33%	0%	17%	0%	0%	0%	0%	0%	0%	0%	50%	0%	0%	0%	0%	0%	100%	0.2147230	2.1257746	0.0009320	0.0092265
X(i)	144	Reprovision of Gascoigne Rd Flyover	Westbound	180	965	35%	1%	11%	1%	7%	4%	11%	11%	2%	1%	1%	0%	1%	10%	5%	1%	100%	0.1170200	2.5587013	0.0056462	0.1234573

Note: (i): Tunnel name is based on Portal & top opening of underpass in EIA of Road Works in West Kowloon.

Note: Emission rate is calculated by emission factor provided by Vehicular Emission Control Section of EPD provided the vehicle fleet average emission factors for pollutants mulitplied by traffic flow of each roads.

Scenario 4

max

			Portal/ opening ID.	Emission Rate - Portal/ Opening (g/s) PM	Emission Rate - Portal/ Opening (g/s) NOx	Emission Rate - Portal/ Opening (g/s) - Volume PM	Emission Rate - Portal/ Opening (g/s) - Volume NOx	Emission Rate - Portal/ Opening (g/m2-s) - Area source PM	Emission Rate - Portal/ Opening (g/m2-s) - Area source NOx	(Area)	Formula from Scenario	Emission calculation formula (Extracted from the approved EIA of Road Works at West Kowloon)
				Calculated by the formula shown (extracted from the approved EIA of Road Works at West Kowloon)		Volume source - calculated by number of portal/opening involved		Area source - calculated by emission rate divided by area				
53.076	0.687		A	0.000525313	0.0067664	--	--	1.0694E-06	1.3775E-05	491.2	1	0.687 x Tunnel Section A
80.935	0.873		B	0.001329202	0.017121	--	--	3.8877E-06	5.0076E-05	341.9	1	0.873 x ((1 - 0.687) x Tunnel Section A + 1 x Tunnel Section B)
32.646	0.435		CE	0.00089956	0.0114751	--	--	1.416E-06	1.8062E-05	635.3	1	0.435 x Tunnel Section C + 0.435 x (1 - 0.873) x (1 - 0.687) x Tunnel Section A + 0.435 x (1 - 0.873) x Tunnel Section B + 0.435 x Tunnel Section E
			D1-D7	0.001573317	0.0202653	0.00014984	0.00193003	--	--	--		
			D8-D14			7.492E-05	0.00096502	--	--	--	1	(1 - 0.435) x Tunnel Section C + (1 - 0.435) x (1 - 0.873) x (1 - 0.687) x Tunnel Section A + (1 - 0.435) x (1 - 0.873) x Tunnel Section B + (1 - 0.435) x Tur
30	0.400		F	0.000644061	0.0081411	--	--	2.3209E-06	2.9337E-05	277.5	1	0.4 x (1 - 0.435) x Tunnel Section E + 0.4 x Tunnel Section F
			H-I4	0.004345297	0.0499274	0.00072422	0.00832124	--	--	--	1	1 x Tunnel Section I + 1 x Tunnel Section G + 1 x Tunnel Section H + 0.14 x Tunnel Section K + (1 - 0.612) x 0.38 x Tunnel SectionO + (1 - 0.4) x (1 - 0.435) x
			I5-I8			0.00036211	0.00416062	--	--	--		Tunnel Section E + (1 - 0.4) x Tunnel Section F + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+ Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel
45.868	0.612		JKO1	0.001563914	0.0164048	--	--	1.0138E-06	1.0634E-05	1542.7	1	0.612 x Tunnel Section J + 0.612 x (1 - 0.14) x Tunnel Section K + 0.612 x Tunnel Section O
			L1-L5	0.000825602	0.0096683	0.00011008	0.00128911	--	--	--		1 x Tunnel Section L + (1 - 0.612) x 0.24 x Tunnel Section J + (1 - 0.612) x 0.62 x Tunnel Section O + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+
			L8-L10			5.504E-05	0.00064456	--	--	--	1	Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P
			M1-M4	0.000509221	0.0063904	8.487E-05	0.00106506	--	--	--		
			M5-M8			4.2435E-05	0.00053253	--	--	--	1	0.5 x (Tunnel Section M + Tunnel Section N)
			N1-N4	0.000509221	0.0063904	8.487E-05	0.00106506	--	--	--		
			N5-N8			4.2435E-05	0.00053253	--	--	--	1	0.5 x (Tunnel Section M + Tunnel Section N)
			P1-P4	0.000759864	0.0083026	0.00012664	0.00138377	--	--	--		1 x Tunnel Section P + (1 - 0.612) x 0.76 x Tunnel Section J + (1 - 0.612) x 0.86 x Tunnel Section K + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+
			P5-P8			6.3322E-05	0.00069188	--	--	--	1	Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P
			W1-W8	0.034250253	0.8851339	0.00285419	0.07376116	--	--	--		
			W9-W16			0.00142709	0.03688058	--	--	--	1	1 x Tunnel W
			701-710	0.005646217	0.1234573	0.00037641	0.00823049	--	--	--	1	
			711-720			0.00018821	0.00411524	--	--	--	--	1 x Tunnel X
			BaseA	0.000896725	0.0084506	0.00089672	0.00845062					1/3 x Basement roads A,B,C
	% of Serving Rd		BaseC	0.000896725	0.0084506	0.00089672	0.00845062					1/3 x Basement roads A,B,C
		Out of 500m	801-820			--	--	--	--	--	1	1 x Tunnel Y
		Out of 500m	901-903			--	--	--	--	--		1 x Tunnel Z
		Out of 500m	904-906			--	--	--	--	--	1	
		Out of 500m	V1								from 1-4	--

Appendix 3.18d - Emission Rates of Portal, Top Openings and Ventilation Exhaust (Hr01-02)

Remarks (Tunnel name - Portal & top opening of underpass in EIA of Rd Works in WK)	WKCD section no.	Road name	Bound	Road Type	Length (m)	Total (veh/hr)	PC	taxi	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	Total	Rate (g/km-veh) PM	Rate (g/km-veh) NOx	Emission Rate (g/s) PM	Emission Rate (g/s) NOx
							Hr 01-02 (2015 EIA_19-12-2011.xls)																				
A(I)	73	Lin Cheung Rd (underpass)	Northbound	3	273	210	55%	0%	21%	0%	2%	2%	5%	5%	2%	2%	0%	0%	2%	2%	0%	0%	100%	0.0943143	1.2268229	0.0004016	0.0052242
B(I)	73	Lin Cheung Rd (underpass)	Northbound	3	272	210	55%	0%	21%	0%	2%	2%	5%	5%	2%	2%	0%	0%	2%	2%	0%	0%	100%	0.0943143	1.2268229	0.0014965	0.0194656
C(I)	73	Lin Cheung Rd (underpass)	Northbound	3	110	210	55%	0%	21%	0%	2%	2%	5%	5%	2%	2%	0%	0%	2%	2%	0%	0%	100%	0.0943143	1.2268229	0.0006052	0.0078721
D(I)	73	Lin Cheung Rd (underpass)	Northbound	3	176	210	55%	0%	21%	0%	2%	2%	5%	5%	2%	2%	0%	0%	2%	2%	0%	0%	100%	0.0943143	1.2268229	0.0009683	0.0125954
E(I)	72	Lin Cheung Rd (underpass)	Southbound	3	155	115	61%	0%	26%	0%	4%	0%	4%	4%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.0856195	0.9034429	0.0004239	0.0044733
F(I)	72	Lin Cheung Rd (depressed)	Southbound	3	172	115	61%	0%	26%	0%	4%	0%	4%	4%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.0856195	0.9034429	0.0004704	0.0049639
G(I)	118	Lin Cheung Rd (depressed)	Southbound	3	121	130	58%	0%	23%	0%	4%	0%	4%	4%	4%	0%	0%	0%	4%	0%	0%	0%	100%	0.0920525	1.0899955	0.0004022	0.0047627
H(I)	119	Austin Rd W (depressed)	Eastbound	3	173	425	31%	1%	52%	0%	1%	1%	5%	2%	1%	1%	0%	0%	0%	1%	1%	2%	100%	0.1397561	1.5027165	0.0028543	0.0306909
I(I)	117	Austin Rd W (depressed)	Eastbound	3	194	115	35%	0%	57%	0%	0%	0%	4%	4%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.1433709	1.2930617	0.0008885	0.0080134
J(I)	116	Austin Rd W (depressed)	Westbound	3	194	155	32%	0%	48%	0%	3%	3%	3%	3%	0%	0%	3%	0%	0%	3%	0%	0%	100%	0.1409186	1.5411581	0.0011771	0.0128730
K(I)	114	Lin Cheung Rd (depressed)	Southbound	3	95	25	60%	0%	40%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.0867808	0.7080664	0.0000573	0.0004671
L(I)	112	Lin Cheung Rd (depressed)	Northbound	3	95	270	54%	2%	24%	0%	2%	2%	6%	4%	2%	2%	0%	0%	2%	2%	0%	0%	100%	0.0969609	1.2051710	0.0006908	0.0085868
M(I)	84	Lin Cheung Rd	Southbound	3	56	105	62%	0%	24%	0%	5%	0%	5%	5%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.0835398	0.9063790	0.0001364	0.0014804
N(I)	77	Lin Cheung Rd	Northbound	3	56	420	52%	1%	23%	0%	2%	2%	6%	4%	2%	1%	1%	0%	2%	1%	0%	1%	100%	0.1014759	1.2541069	0.0006630	0.0081935
O(I)	111	Austin Rd W (depressed)	Eastbound	3	52	340	29%	1%	53%	0%	1%	1%	4%	3%	1%	0%	0%	0%	0%	1%	1%	1%	100%	0.1423837	1.5668165	0.0006993	0.0076948
P(I)	110	Austin Rd W (depressed)	Westbound	3	52	195	28%	0%	51%	0%	3%	3%	5%	3%	0%	0%	0%	0%	0%	3%	3%	3%	100%	0.1466236	1.8155317	0.0004130	0.0051137
W(I)	98	West Kowloon Highway (WKH)	Northbound	2	1970	560	56%	0%	15%	0%	3%	2%	5%	4%	3%	2%	2%	0%	4%	2%	3%	0%	100%	0.0376112	1.0372349	0.0115257	0.3178549
	A	Internal Rd A	Bothbound	4	404	15	33%	0%	33%	0%	0%	0%	0%	0%	0%	0%	33%	0%	0%	0%	0%	0%	100%	0.1181331	1.2262913	0.0001989	0.0020643
	B	Internal Rd B	Bothbound	4	361	20	50%	0%	25%	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	0%	100%	0.0901715	0.9342677	0.0001808	0.0018737
	C	Internal Rd C	Bothbound	4	521	10	50%	0%	0%	0%	0%	0%	0%	0%	0%	0%	50%	0%	0%	0%	0%	0%	100%	0.1771997	1.8394369	0.0002564	0.0026621
X(I)	144	Reprovision of Gascoigne Rd Flyover	Westbound	3	180	650	35%	1%	12%	1%	7%	4%	12%	11%	2%	1%	1%	0%	1%	10%	5%	1%	100%	0.1184204	2.5744043	0.0038487	0.0836681

Note: (I): Tunnel name is based on Portal & top opening of underpass in EIA of Road Works in West Kowloon.

Note: Emission rate is calculated by emission factor provided by Vehicular Emission Control Section of EPD provided the vehicle fleet average emission factors for pollutants mulitplied by traffic flow of each roads.

Scenario 4

max

				Calculated by the formula shown (extracted from the approved EIA of Road Works at West Kowloon)		Volume source - calculated by number of portal/opening involved		Area source - calculated by emission rate divided by area				
				Emission Rate - Portal/ Opening (g/s)		Emission Rate - Portal/ Opening (g/s) - Volume		Emission Rate - Portal/ Opening (g/m2-s) - Area source				
			Portal/ opening ID.	Source Type	PM	NOx	PM	NOx	PM	NOx	(Area)	Formula from Scenario	Emission calculation formula (Extracted from the approved EIA of Road Works at West Kowloon)
53.076	0.687		A	Area	0.00027598	0.0035899	--	--	5.6186E-07	7.3085E-06	491.2	1	0.687 x Tunnel Section A
80.935	0.873		B	Area	0.00141592	0.0184181	--	--	4.1413E-06	5.387E-05	341.9	1	0.873 x ((1 - 0.687) x Tunnel Section A + 1 x Tunnel Section B)
32.646	0.435		CE	Area	0.0005377	0.006541	--	--	8.4636E-07	1.0296E-05	635.3	1	0.435 x Tunnel Section C + 0.435 x (1 - 0.873) x (1 - 0.687) x Tunnel Section A + 0.435 x (1 - 0.873) x Tunnel Section B + 0.435 x Tunnel Section E
			D1-D7		0.00142648	0.0185554	0.00013586	0.00176718	--	--	--		
			D8-D14	Volume			6.7928E-05	0.00088359	--	--	--	1	(1 - 0.435) x Tunnel Section C + (1 - 0.435) x (1 - 0.873) x (1 - 0.687) x Tunnel Section A + (1 - 0.435) x (1 - 0.873) x Tunnel Section B + (1 - 0.435) x Tun
30	0.400		F	Area	0.00028393	0.002996	--	--	1.0232E-06	1.0797E-05	277.5	1	0.4 x (1 - 0.435) x Tunnel Section E + 0.4 x Tunnel Section F
			I1-I4		0.0046985	0.0494169	0.00078308	0.00823615	--	--	--	1	1 x Tunnel Section I + 1 x Tunnel Section G + 1 x Tunnel Section H + 0.14 x Tunnel Section K + (1 - 0.612) x 0.38 x Tunnel SectionO + (1 - 0.4) x (1 - 0.435) x
			I5-I8	Volume			0.00039154	0.00411807	--	--	--		Tunnel Section E + (1 - 0.4) x Tunnel Section F + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+ Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel
45.868	0.612		JKO1	Area	0.00130731	0.0141699	--	--	8.4741E-07	9.1851E-06	1542.7	1	0.612 x Tunnel Section J + 0.612 x (1 - 0.14) x Tunnel Section K + 0.612 x Tunnel Section O
			L1-L5		0.00100732	0.0120333	0.00013431	0.00160444	--	--	--		1 x Tunnel Section L + (1 - 0.612) x 0.24 x Tunnel Section J + (1 - 0.612) x 0.62 x Tunnel Section O + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+
			L6-L10	Volume			8.7154E-05	0.00080222	--	--	--	1	Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P
			M1-M4		0.00039971	0.004837	6.6619E-05	0.00080616	--	--	--		
			M5-M8	Volume			3.3309E-05	0.00040308	--	--	--	1	0.5 x (Tunnel Section M + Tunnel Section N)
			N1-N4		0.00039971	0.004837	6.6619E-05	0.00080616	--	--	--		
			N5-N8	Volume			3.3309E-05	0.00040308	--	--	--	1	0.5 x (Tunnel Section M + Tunnel Section N)
			P1-P4		0.00080728	0.0092765	0.00013455	0.00154608	--	--	--		1 x Tunnel Section P + (1 - 0.612) x 0.76 x Tunnel Section J + (1 - 0.612) x 0.86 x Tunnel Section K + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+
			P5-P8	Volume			6.7273E-05	0.00077304	--	--	--	1	Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P
			W1-W8		0.01152574	0.3178549	0.00096048	0.02648791	--	--	--		
			W9-W16	Volume			0.00048024	0.01324395	--	--	--	1	1 x Tunnel W
			701-710		0.00384866	0.0836681	0.00025658	0.00557788	--	--	--	1	
			711-720	Volume			0.00012829	0.00278894	--	--	--	--	1 x Tunnel X
			BaseA	Volume	0.00021205	0.0022	0.00021205	0.00220002					1/3 x Basement roads A,B,C
	% of Serving Rd		BaseC		0.00021205	0.0022	0.00021205	0.00220002					1/3 x Basement roads A,B,C
		Out of 500m	801-820	Volume			--	--	--	--	--	1	1 x Tunnel Y
		Out of 500m	901-903				--	--	--	--	--		1 x Tunnel Z
		Out of 500m	904-906	Volume			--	--	--	--	--	1	
		Out of 500m	V1	Point								from 1-4	--

Appendix 3.18d - Emission Rates of Portal, Top Openings and Ventilation Exhaust (Hr02-03)

Remarks (Tunnel name - Portal & top opening of underpass in EIA of Rd Works in WK)	WKCD section no.	Road name	Bound	Road Type	Length (m)	Total (veh/hr)	PC	taxi	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	Total	Rate (g/km-veh) PM	Rate (g/km-veh) NOx	Emission Rate (g/s) PM	Emission Rate (g/s) NOx
							Hr 02-03 (2015 EIA_19-12-2011.xls)																				
A(I)	73	Lin Cheung Rd (underpass)	Northbound	3	73	135	56%	0%	22%	0%	4%	4%	7%	4%	0%	0%	0%	0%	4%	0%	0%	0%	100%	0.1111624	1.3667947	0.0003043	0.0037416
B(I)	73	Lin Cheung Rd (underpass)	Northbound	3	272	135	56%	0%	22%	0%	4%	4%	7%	4%	0%	0%	0%	0%	4%	0%	0%	0%	100%	0.1111624	1.3667947	0.0011339	0.0139413
C(I)	73	Lin Cheung Rd (underpass)	Northbound	3	110	135	56%	0%	22%	0%	4%	4%	7%	4%	0%	0%	0%	0%	4%	0%	0%	0%	100%	0.1111624	1.3667947	0.0004585	0.0056380
D(I)	73	Lin Cheung Rd (underpass)	Northbound	3	176	135	56%	0%	22%	0%	4%	4%	7%	4%	0%	0%	0%	0%	4%	0%	0%	0%	100%	0.1111624	1.3667947	0.0007337	0.0090208
E(I)	72	Lin Cheung Rd (underpass)	Southbound	3	155	110	59%	0%	27%	0%	5%	0%	5%	5%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.0882718	0.9397428	0.0004181	0.0044507
F(I)	72	Lin Cheung Rd (depressed)	Southbound	3	172	110	59%	0%	27%	0%	5%	0%	5%	5%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.0882718	0.9397428	0.0004639	0.0049389
G(I)	118	Lin Cheung Rd (depressed)	Southbound	3	121	135	56%	0%	22%	0%	4%	0%	7%	4%	4%	0%	0%	0%	4%	0%	0%	0%	100%	0.1024286	1.2617028	0.0004648	0.0057250
H(I)	119	Austin Rd W (depressed)	Eastbound	3	173	440	30%	1%	52%	0%	1%	1%	5%	2%	1%	1%	0%	0%	1%	1%	1%	2%	100%	0.1425085	1.5675662	0.0030133	0.0331453
I(I)	117	Austin Rd W (depressed)	Eastbound	3	194	120	33%	0%	54%	0%	0%	0%	4%	4%	0%	0%	0%	0%	0%	0%	0%	4%	100%	0.1364513	1.2514258	0.0008624	0.0080926
J(I)	116	Austin Rd W (depressed)	Westbound	3	194	145	34%	0%	52%	0%	0%	0%	3%	3%	0%	0%	0%	0%	0%	0%	3%	3%	100%	0.1300228	1.5319528	0.0010160	0.0119705
K(I)	114	Lin Cheung Rd (depressed)	Southbound	3	95	20	75%	0%	25%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.0551335	0.4595877	0.0000291	0.0002426
L(I)	112	Lin Cheung Rd (depressed)	Northbound	3	95	185	54%	0%	24%	0%	3%	3%	5%	3%	3%	3%	0%	0%	3%	0%	0%	0%	100%	0.1010261	1.1767331	0.0004932	0.0057447
M(I)	84	Lin Cheung Rd	Southbound	3	56	100	60%	0%	25%	0%	5%	0%	5%	5%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.0864728	0.9467793	0.0001345	0.0014728
N(I)	77	Lin Cheung Rd	Northbound	3	56	275	55%	0%	24%	0%	4%	2%	5%	4%	2%	2%	0%	0%	2%	2%	0%	0%	100%	0.0962872	1.2157284	0.0004119	0.0052006
O(I)	111	Austin Rd W (depressed)	Eastbound	3	52	350	30%	1%	51%	0%	1%	1%	4%	3%	1%	0%	0%	0%	1%	1%	1%	1%	100%	0.1422522	1.6214943	0.0007192	0.0081976
P(I)	110	Austin Rd W (depressed)	Westbound	3	52	190	26%	3%	53%	0%	3%	3%	5%	3%	0%	0%	0%	0%	0%	0%	3%	3%	100%	0.1473824	1.7098931	0.0004045	0.0046927
W(I)	98	West Kowloon Highway (WKH)	Northbound	2	1970	545	55%	0%	16%	0%	3%	2%	6%	4%	3%	2%	2%	0%	5%	2%	3%	0%	100%	0.0372391	1.0434813	0.0111061	0.3112038
	A	Internal Rd A	Bothbound	4	404	5	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.0057955	0.0567367	0.0000033	0.0000318
	B	Internal Rd B	Bothbound	4	361	15	33%	0%	33%	0%	0%	0%	0%	0%	0%	0%	33%	0%	0%	0%	0%	0%	100%	0.1048959	1.1361667	0.0001578	0.0017090
	C	Internal Rd C	Bothbound	4	521	5	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	100%	0.3088922	3.3517635	0.0002235	0.0024254
X(I)	144	Reprovision of Gascoigne Rd Flyover	Westbound	3	180	645	34%	1%	12%	1%	7%	4%	12%	11%	2%	2%	1%	0%	1%	9%	5%	1%	100%	0.1178284	2.5455230	0.0038000	0.0820931

Note: (I): Tunnel name is based on Portal & top opening of underpass in EIA of Road Works in West Kowloon.

Note: Emission rate is calculated by emission factor provided by Vehicular Emission Control Section of EPD provided the vehicle fleet average emission factors for pollutants mulitplied by traffic flow of each roads.

Scenario 4

max

				Calculated by the formula shown (extracted from the approved EIA of Road Works at West Kowloon)		Volume source - calculated by number of portal/opening involved		Area source - calculated by emission rate divided by area				
				Emission Rate - Portal/ Opening (g/s)		Emission Rate - Portal/ Opening (g/s) - Volume		Emission Rate - Portal/ Opening (g/m2-s) - Area source				
			Portal/ opening ID.	Source Type	PM	NOx	PM	NOx	PM	NOx	(Area)	Formula from Scenario	Emission calculation formula (Extracted from the approved EIA of Road Works at West Kowloon)
53.076	0.687		A	Area	0.00020911	0.0025711	–	–	4.2572E-07	5.2344E-06	491.2	1	0.687 x Tunnel Section A
80.935	0.873		B	Area	0.00107284	0.0131911	–	–	3.1379E-06	3.8582E-05	341.9	1	0.873 x ((1 - 0.687) x Tunnel Section A + 1 x Tunnel Section B)
32.646	0.435		CE	Area	0.00044957	0.0052275	–	–	7.0765E-07	8.2284E-06	635.3	1	0.435 x Tunnel Section C + 0.435 x (1 - 0.873) x (1 - 0.687) x Tunnel Section A + 0.435 x (1 - 0.873) x Tunnel Section B + 0.435 x Tunnel Section E
			D1-D7		0.00108084	0.0132894	0.00010294	0.00126566	–	–	–		
			D8-D14	Volume			5.1468E-05	0.00063283	–	–	–	1	(1 - 0.435) x Tunnel Section C + (1 - 0.435) x (1 - 0.873) x (1 - 0.687) x Tunnel Section A + (1 - 0.435) x (1 - 0.873) x Tunnel Section B + (1 - 0.435) x Tun
30	0.400		F	Area	0.00028	0.0029809	–	–	1.009E-06	1.0742E-05	277.5	1	0.4 x (1 - 0.435) x Tunnel Section E + 0.4 x Tunnel Section F
			I1-I4		0.00490272	0.0528363	0.00081712	0.00880605	–	–	–	1	1 x Tunnel Section I + 1 x Tunnel Section G + 1 x Tunnel Section H + 0.14 x Tunnel Section K + (1 - 0.612) x 0.38 x Tunnel SectionO + (1 - 0.4) x (1 - 0.435) x
			I5-I8	Volume			0.00040856	0.00440302	–	–	–		Tunnel Section E + (1 - 0.4) x Tunnel Section F + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+ Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel
45.868	0.612		JKO1	Area	0.00115487	0.0133111	–	–	7.486E-07	8.6285E-06	1542.7	1	0.612 x Tunnel Section J + 0.612 x (1 - 0.14) x Tunnel Section K + 0.612 x Tunnel Section O
			L1-L5		0.00077972	0.0090913	0.00010396	0.00121217	–	–	–		1 x Tunnel Section L + (1 - 0.612) x 0.24 x Tunnel Section J + (1 - 0.612) x 0.62 x Tunnel Section O + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+
			L6-L10	Volume			5.1981E-05	0.00060609	–	–	–	1	Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P
			M1-M4		0.0002732	0.0033367	4.5534E-05	0.00055611	–	–	–		
			M5-M8	Volume			2.2767E-05	0.00027806	–	–	–	1	0.5 x (Tunnel Section M + Tunnel Section N)
			N1-N4		0.0002732	0.0033367	4.5534E-05	0.00055611	–	–	–		
			N5-N8	Volume			2.2767E-05	0.00027806	–	–	–	1	0.5 x (Tunnel Section M + Tunnel Section N)
			P1-P4		0.00073324	0.0084323	0.00012221	0.00140539	–	–	–		1 x Tunnel Section P + (1 - 0.612) x 0.76 x Tunnel Section J + (1 - 0.612) x 0.86 x Tunnel Section K + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+
			P5-P8	Volume			6.1103E-05	0.00070269	–	–	–	1	Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P
			W1-W8		0.01110605	0.3112038	0.0009255	0.02593365	–	–	–		
			W9-W16	Volume			0.00046275	0.01296682	–	–	–	1	1 x Tunnel W
			701-710		0.00379997	0.0820931	0.00025333	0.00547287	–	–	–	1	
			711-720	Volume			0.00012667	0.00273644	–	–	–	–	1 x Tunnel X
			BaseA	Volume	0.00012818	0.0013887	0.00012818	0.00138873					1/3 x Basement roads A,B,C
	% of Serving Rd		BaseC		0.00012818	0.0013887	0.00012818	0.00138873					1/3 x Basement roads A,B,C
		Out of 500m	801-820	Volume			–	–	–	–	–	1	1 x Tunnel Y
		Out of 500m	901-903				–	–	–	–	–		1 x Tunnel Z
		Out of 500m	904-906	Volume			–	–	–	–	–	1	
		Out of 500m	V1	Point								from 1-4	–

Appendix 3.18d - Emission Rates of Portal, Top Openings and Ventilation Exhaust (Hr03-04)

Remarks (Tunnel name - Portal & top opening of underpass in EIA of Rd Works in WK)	WKCD section no.	Road name	Bound	Road Type	Length (m)	Total (veh/hr)	Hr 03-04 (2015 EIA_19-12-2011.xls) PC	taxi	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	Total	Rate (g/km- PM	NOx	Emission Rate (g/s) PM	NOx
A[(I)]	73	Lin Cheung Rd (underpass)	Northbound	3	73	60	58%	0%	25%	0%	0%	0%	8%	8%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.0964577	1.0565426	0.0001174	0.0012855
B[(I)]	73	Lin Cheung Rd (underpass)	Northbound	3	272	60	58%	0%	25%	0%	0%	0%	8%	8%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.0964577	1.0565426	0.0004373	0.0047897
C[(I)]	73	Lin Cheung Rd (underpass)	Northbound	3	110	60	58%	0%	25%	0%	0%	0%	8%	8%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.0964577	1.0565426	0.0001768	0.0019370
D[(I)]	73	Lin Cheung Rd (underpass)	Northbound	3	176	60	58%	0%	25%	0%	0%	0%	8%	8%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.0964577	1.0565426	0.0002829	0.0030992
E[(I)]	72	Lin Cheung Rd (underpass)	Southbound	3	155	120	54%	0%	25%	0%	4%	0%	4%	4%	4%	0%	0%	0%	4%	0%	0%	0%	100%	0.0970091	1.1690494	0.0005012	0.0060401
F[(I)]	72	Lin Cheung Rd (depressed)	Southbound	3	172	120	54%	0%	25%	0%	4%	0%	4%	4%	4%	0%	0%	0%	4%	0%	0%	0%	100%	0.0970091	1.1690494	0.0005562	0.0067025
G[(I)]	118	Lin Cheung Rd (depressed)	Southbound	3	121	150	50%	0%	23%	0%	3%	3%	7%	3%	3%	3%	0%	0%	3%	0%	0%	0%	100%	0.1089485	1.3270861	0.0005493	0.0066907
H[(I)]	119	Austin Rd W (depressed)	Eastbound	3	173	225	27%	2%	53%	0%	2%	2%	4%	2%	0%	0%	0%	0%	0%	2%	2%	2%	100%	0.1423527	1.7284372	0.0015392	0.0186887
I[(I)]	117	Austin Rd W (depressed)	Eastbound	3	194	60	33%	0%	58%	0%	0%	0%	8%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.1543550	1.4791575	0.0004991	0.0047826
J[(I)]	116	Austin Rd W (depressed)	Westbound	3	194	70	36%	0%	57%	0%	0%	0%	7%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.1472623	1.3912920	0.0005555	0.0052483
K[(I)]	114	Lin Cheung Rd (depressed)	Southbound	3	95	20	75%	0%	25%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.0543449	0.4569923	0.0000287	0.0002412
L[(I)]	112	Lin Cheung Rd (depressed)	Northbound	3	95	85	59%	0%	29%	0%	0%	0%	6%	6%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.0929589	0.9520466	0.0002085	0.0021355
M[(I)]	84	Lin Cheung Rd	Southbound	3	56	115	52%	0%	22%	0%	4%	4%	4%	4%	4%	0%	0%	0%	4%	0%	0%	0%	100%	0.1036526	1.2775418	0.0001854	0.0022854
N[(I)]	77	Lin Cheung Rd	Northbound	3	56	150	50%	0%	23%	0%	3%	3%	7%	3%	3%	3%	0%	0%	3%	0%	0%	0%	100%	0.1089485	1.3270861	0.0002542	0.0030965
O[(I)]	111	Austin Rd W (depressed)	Eastbound	3	52	180	22%	3%	53%	0%	3%	3%	6%	3%	0%	0%	0%	0%	0%	3%	3%	3%	100%	0.1489664	1.9219048	0.0003873	0.0049970
P[(I)]	110	Austin Rd W (depressed)	Westbound	3	52	95	37%	0%	58%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.1413646	1.2954102	0.0001940	0.0017776
W[(I)]	98	West Kowloon Highway (WKH)	Northbound	2	1970	545	55%	0%	16%	0%	3%	2%	6%	4%	3%	2%	2%	0%	5%	2%	3%	0%	100%	0.0372391	1.0452387	0.0111061	0.3117279
	A	Internal Rd A	Bothbound	4	404	5	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.0057589	0.0568122	0.0000032	0.0000319
	B	Internal Rd B	Bothbound	4	361	15	33%	0%	33%	0%	0%	0%	0%	0%	0%	0%	33%	0%	0%	0%	0%	0%	100%	0.1048837	1.1379078	0.0001578	0.0017116
	C	Internal Rd C	Bothbound	4	521	5	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	100%	0.3088921	3.3569111	0.0002235	0.0024291
X[(I)]	144	Reprovision of Gascoigne Rd Flyover	Westbound	3	180	655	34%	1%	11%	1%	7%	5%	12%	11%	2%	2%	1%	0%	1%	9%	5%	1%	100%	0.1202185	2.5743785	0.0039372	0.0843109

Note: (I): Tunnel name is based on Portal & top opening of underpass in EIA of Road Works in West Kowloon.

Note: Emission rate is calculated by emission factor provided by Vehicular Emission Control Section of EPD provided the vehicle fleet average emission factors for pollutants mulitplied by traffic flow of each roads.

Scenario 4

max

			Portal/ opening ID.	Source Type	Calculated by the formula shown (extracted from the approved EIA of Road Works at West Kowloon) Emission Rate - Portal/ Opening (g/s) PM	NOx	Volume source - calculated by number of portal/opening involved Emission Rate - Portal/ Opening (g/s) - Volume PM	NOx	Area source - calculated by emission rate divided by area Emission Rate - Portal/ Opening (g/m2-s) - Area source PM	NOx	(Area)	Formula from Scenario	Emission calculation formula (Extracted from the approved EIA of Road Works at West Kowloon)
53.076	0.687		A	Area	8.0645E-05	0.0008833	--	--	1.6418E-07	1.7983E-06	491.2	1	0.687 x Tunnel Section A
80.935	0.873		B	Area	0.00041374	0.0045319	--	--	1.2101E-06	1.3255E-05	341.9	1	0.873 x ((1 - 0.687) x Tunnel Section A + 1 x Tunnel Section B)
32.646	0.435		CE	Area	0.00032137	0.0037595	--	--	5.0585E-07	5.9177E-06	635.3	1	0.435 x Tunnel Section C + 0.435 x (1 - 0.873) x (1 - 0.687) x Tunnel Section A + 0.435 x (1 - 0.873) x Tunnel Section B + 0.435 x Tunnel Section E
			D1-D7		0.00041683	0.0045657	3.9698E-05	0.00043483	--	--	--		
			D8-D14	Volume			1.9849E-05	0.00021741	--	--	--	1	(1 - 0.435) x Tunnel Section C + (1 - 0.435) x (1 - 0.873) x (1 - 0.687) x Tunnel Section A + (1 - 0.435) x (1 - 0.873) x Tunnel Section B + (1 - 0.435) x Tun
30	0.400		F	Area	0.00033569	0.0040454	--	--	1.2097E-06	1.4578E-05	277.5	1	0.4 x (1 - 0.435) x Tunnel Section E + 0.4 x Tunnel Section F
			I1-I4		0.00316472	0.0371411	0.00052745	0.00619018	--	--	--	1	1 x Tunnel Section I + 1 x Tunnel Section G + 1 x Tunnel Section H + 0.14 x Tunnel Section K + (1 - 0.612) x 0.38 x Tunnel SectionO + (1 - 0.4) x (1 - 0.435) x
			I5-I8	Volume			0.00026373	0.00309509	--	--	--		Tunnel Section E + (1 - 0.4) x Tunnel Section F + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+ Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel
45.868	0.612		JKO1	Area	0.00067007	0.0072432	--	--	4.3435E-07	4.6951E-06	1542.7	1	0.612 x Tunnel Section J + 0.612 x (1 - 0.14) x Tunnel Section K + 0.612 x Tunnel Section O
			L1-L5		0.0003712	0.0040745	4.9494E-05	0.00054327	--	--	--		1 x Tunnel Section L + (1 - 0.612) x 0.24 x Tunnel Section J + (1 - 0.612) x 0.62 x Tunnel Section O + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+
			L6-L10	Volume			2.4747E-05	0.00027163	--	--	--	1	Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P
			M1-M4		0.00021982	0.002691	3.6636E-05	0.00044849	--	--	--		
			M5-M8	Volume			1.8318E-05	0.00022425	--	--	--	1	0.5 x (Tunnel Section M + Tunnel Section N)
			N1-N4		0.00021982	0.002691	3.6636E-05	0.00044849	--	--	--		
			N5-N8	Volume			1.8318E-05	0.00022425	--	--	--	1	0.5 x (Tunnel Section M + Tunnel Section N)
			P1-P4		0.00038726	0.0035618	6.4543E-05	0.00059363	--	--	--		1 x Tunnel Section P + (1 - 0.612) x 0.76 x Tunnel Section J + (1 - 0.612) x 0.86 x Tunnel Section K + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+
			P5-P8	Volume			3.2272E-05	0.00029681	--	--	--	1	Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P
			W1-W8		0.01110605	0.3117279	0.0009255	0.02597733	--	--	--		
			W9-W16	Volume			0.00046275	0.01298866	--	--	--	1	1 x Tunnel W
			701-710		0.00393716	0.0843109	0.00026248	0.00562073	--	--	--	1	
			711-720	Volume			0.00013124	0.00281036	--	--	--	--	1 x Tunnel X
			BaseA	Volume	0.00012817	0.0013909	0.00012817	0.00139086					1/3 x Basement roads A,B,C
		% of Serving Rd	BaseC		0.00012817	0.0013909	0.00012817	0.00139086					1/3 x Basement roads A,B,C
		Out of 500m	801-820	Volume			--	--	--	--	--	1	1 x Tunnel Y
		Out of 500m	901-903				--	--	--	--	--		1 x Tunnel Z
		Out of 500m	904-906	Volume			--	--	--	--	--	1	
		Out of 500m	V1	Point								from 1-4	--

Appendix 3.18d - Emission Rates of Portal, Top Openings and Ventilation Exhaust (Hr04-05)

Remarks (Tunnel name - Portal & top opening of underpass in EIA of Rd Works in WK)	WKCD section no.	Road name	Bound	Road Type	Length (m)	Total (veh/hr)	Hr 04-05 (2015 EIA_19-12-2011.xls) PC	taxi	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	Total	Rate (g/km-) PM	NOx	Emission Rate (g/s) PM	NOx
A(i)	73	Lin Cheung Rd (underpass)	Northbound	3	73	60	58%	0%	25%	0%	0%	0%	8%	8%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.0970008	1.0605467	0.0001180	0.0012903
B(i)	73	Lin Cheung Rd (underpass)	Northbound	3	272	60	58%	0%	25%	0%	0%	0%	8%	8%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.0970008	1.0605467	0.0004397	0.0048078
C(i)	73	Lin Cheung Rd (underpass)	Northbound	3	110	60	58%	0%	25%	0%	0%	0%	8%	8%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.0970008	1.0605467	0.0001778	0.0019443
D(i)	73	Lin Cheung Rd (underpass)	Northbound	3	176	60	58%	0%	25%	0%	0%	0%	8%	8%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.0970008	1.0605467	0.0002845	0.0031109
E(i)	72	Lin Cheung Rd (underpass)	Southbound	3	155	120	54%	0%	25%	0%	4%	0%	4%	4%	4%	0%	0%	0%	4%	0%	0%	0%	100%	0.0976081	1.1735407	0.0005043	0.0060633
F(i)	72	Lin Cheung Rd (depressed)	Southbound	3	172	120	54%	0%	25%	0%	4%	0%	4%	4%	4%	0%	0%	0%	4%	0%	0%	0%	100%	0.0976081	1.1735407	0.0005596	0.0067283
G(i)	118	Lin Cheung Rd (depressed)	Southbound	3	121	150	50%	0%	23%	0%	3%	3%	7%	3%	3%	3%	0%	0%	3%	0%	0%	0%	100%	0.1095626	1.3316678	0.0005524	0.0067138
H(i)	119	Austin Rd W (depressed)	Eastbound	3	173	230	26%	2%	54%	0%	2%	2%	4%	2%	0%	0%	0%	0%	0%	0%	2%	2%	100%	0.1447187	1.7333541	0.0015995	0.0191584
I(i)	117	Austin Rd W (depressed)	Eastbound	3	194	60	33%	0%	58%	0%	0%	0%	8%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.1555242	1.4858010	0.0005025	0.0048041
J(i)	116	Austin Rd W (depressed)	Westbound	3	194	65	31%	0%	62%	0%	0%	0%	8%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.1594894	1.5012774	0.0005587	0.0052586
K(i)	114	Lin Cheung Rd (depressed)	Southbound	3	95	20	75%	0%	25%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.0547480	0.4592040	0.0000289	0.0002424
L(i)	112	Lin Cheung Rd (depressed)	Northbound	3	95	85	59%	0%	29%	0%	0%	0%	6%	6%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.0935337	0.9559042	0.0002098	0.0021441
M(i)	84	Lin Cheung Rd	Southbound	3	56	120	50%	0%	25%	0%	4%	4%	4%	4%	4%	0%	0%	0%	4%	0%	0%	0%	100%	0.1085232	1.2989946	0.0002026	0.0024248
N(i)	77	Lin Cheung Rd	Northbound	3	56	150	50%	0%	23%	0%	3%	3%	7%	3%	3%	3%	0%	0%	3%	0%	0%	0%	100%	0.1095626	1.3316678	0.0002556	0.0031072
O(i)	111	Austin Rd W (depressed)	Eastbound	3	52	180	19%	3%	56%	0%	3%	3%	6%	3%	0%	0%	0%	0%	0%	3%	3%	3%	100%	0.1556065	1.9736005	0.0004046	0.0051314
P(i)	110	Austin Rd W (depressed)	Westbound	3	52	95	37%	0%	58%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.1424472	1.3014426	0.0001955	0.0017859
W(i)	98	West Kowloon Highway (WKH)	Northbound	2	1970	535	54%	0%	16%	0%	3%	2%	6%	4%	3%	2%	2%	0%	5%	2%	3%	0%	100%	0.0379007	1.0648712	0.0110960	0.3117558
	A	Internal Rd A	Bothbound	4	404	5	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.0054188	0.0557154	0.0000030	0.0000313
	B	Internal Rd B	Bothbound	4	361	15	33%	0%	33%	0%	0%	0%	0%	0%	0%	0%	33%	0%	0%	0%	0%	0%	100%	0.0982316	1.0922400	0.0001478	0.0016429
	C	Internal Rd C	Bothbound	4	521	5	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	100%	0.2892760	3.2210045	0.0002093	0.0023308
X(i)	144	Reprovision of Gascoigne Rd Flyover	Westbound	3	180	315	35%	0%	11%	0%	6%	5%	13%	11%	2%	2%	2%	0%	0%	10%	5%	0%	100%	0.1205227	2.5939861	0.0018982	0.0408553

Note: (i): Tunnel name is based on Portal & top opening of underpass in EIA of Road Works in West Kowloon.

Note: Emission rate is calculated by emission factor provided by Vehicular Emission Control Section of EPD provided the vehicle fleet average emission factors for pollutants mulitplied by traffic flow of each roads.

Scenario 4

max

					Calculated by the formula shown (extracted from the approved EIA of Road Works at West Kowloon) Emission Rate - Portal/ Opening (g/s)		Volume source - calculated by number of portal/opening involved Emission Rate - Portal/ Opening (g/s) - Volume		Area source - calculated by emission rate divided by area Emission Rate - Portal/ Opening (g/m2-s) - Area source				
			Portal/ opening ID.	Source Type	PM	NOx	PM	NOx	PM	NOx	(Area)	Formula from Scenario	Emission calculation formula (Extracted from the approved EIA of Road Works at West Kowloon)
53.076	0.687		A	Area	8.1099E-05	0.0008867	--	--	1.651E-07	1.8051E-06	491.2	1	0.687 x Tunnel Section A
80.935	0.873		B	Area	0.00041607	0.0045491	--	--	1.2169E-06	1.3305E-05	341.9	1	0.873 x ((1 - 0.687) x Tunnel Section A + 1 x Tunnel Section B)
32.646	0.435		CE	Area	0.00032329	0.0037739	--	--	5.0888E-07	5.9403E-06	635.3	1	0.435 x Tunnel Section C + 0.435 x (1 - 0.873) x (1 - 0.687) x Tunnel Section A + 0.435 x (1 - 0.873) x Tunnel Section B + 0.435 x Tunnel Section E
			D1-D7		0.00041917	0.004583	3.9921E-05	0.00043648	--	--	--		
			D8-D14	Volume			1.9961E-05	0.00021824	--	--	--	1	(1 - 0.435) x Tunnel Section C + (1 - 0.435) x (1 - 0.873) x (1 - 0.687) x Tunnel Section A + (1 - 0.435) x (1 - 0.873) x Tunnel Section B + (1 - 0.435) x Tun
30	0.400		F	Area	0.00033777	0.0040609	--	--	1.2172E-06	1.4634E-05	277.5	1	0.4 x (1 - 0.435) x Tunnel Section E + 0.4 x Tunnel Section F
			I1-I4		0.00323685	0.037693	0.00053947	0.00628217	--	--	--	1	1 x Tunnel Section I + 1 x Tunnel Section G + 1 x Tunnel Section H + 0.14 x Tunnel Section K + (1 - 0.612) x 0.38 x Tunnel SectionO + (1 - 0.4) x (1 - 0.435) x
			I5-I8	Volume			0.00026974	0.00314109	--	--	--		Tunnel Section E + (1 - 0.4) x Tunnel Section F + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+ Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel
45.868	0.612		JKO1	Area	0.0006777	0.0072982	--	--	4.3929E-07	4.7308E-06	1542.7	1	0.612 x Tunnel Section J + 0.612 x (1 - 0.14) x Tunnel Section K + 0.612 x Tunnel Section O
			L1-L5		0.00037583	0.0041066	5.011E-05	0.00054754	--	--	--		1 x Tunnel Section L + (1 - 0.612) x 0.24 x Tunnel Section J + (1 - 0.612) x 0.62 x Tunnel Section O + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+
			L6-L10	Volume			2.5055E-05	0.00027377	--	--	--	1	Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P
			M1-M4		0.00022911	0.002766	3.8185E-05	0.000461	--	--	--		
			M5-M8	Volume			1.9093E-05	0.0002305	--	--	--	1	0.5 x (Tunnel Section M + Tunnel Section N)
			N1-N4		0.00022911	0.002766	3.8185E-05	0.000461	--	--	--		
			N5-N8	Volume			1.9093E-05	0.0002305	--	--	--	1	0.5 x (Tunnel Section M + Tunnel Section N)
			P1-P4		0.0003885	0.0035673	6.4749E-05	0.00059455	--	--	--		1 x Tunnel Section P + (1 - 0.612) x 0.76 x Tunnel Section J + (1 - 0.612) x 0.86 x Tunnel Section K + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+
			P5-P8	Volume			3.2375E-05	0.00029727	--	--	--	1	Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P
			W1-W8		0.01109596	0.3117558	0.00092466	0.02597965	--	--	--		
			W9-W16	Volume			0.00046233	0.01298983	--	--	--	1	1 x Tunnel W
			701-710		0.00189823	0.0408553	0.00012655	0.00272369	--	--	--	1	
			711-720	Volume			6.3274E-05	0.00136184	--	--	--	--	1 x Tunnel X
			BaseA	Volume	0.00012004	0.001335	0.00012004	0.00133498					1/3 x Basement roads A,B,C
	% of Serving Rd		BaseC		0.00012004	0.001335	0.00012004	0.00133498					1/3 x Basement roads A,B,C
		Out of 500m	801-820	Volume			--	--	--	--	--	1	1 x Tunnel Y
		Out of 500m	901-903				--	--	--	--	--		1 x Tunnel Z
		Out of 500m	904-906	Volume			--	--	--	--	--	1	
		Out of 500m	V1	Point								from 1-4	--

Appendix 3.18d - Emission Rates of Portal, Top Openings and Ventilation Exhaust (Hr05-06)

Remarks (Tunnel name - Portal & top opening of underpass in EIA of Rd Works in WK)	WKCD section no.	Road name	Bound	Road Type	Length (m)	Total (veh/hr)	Hr 05-06 (2015 EIA_19-12-2011.xls) PC	taxi	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	Total	Rate (g/km-) PM	NOx	Emission Rate (g/s) PM	NOx
A(i)	73	Lin Cheung Rd (underpass)	Northbound	3	573	55	64%	0%	27%	0%	0%	0%	9%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.0970581	1.0280291	0.0001082	0.0011465
B(i)	73	Lin Cheung Rd (underpass)	Northbound	3	272	55	64%	0%	27%	0%	0%	0%	9%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.0970581	1.0280291	0.0004033	0.0042720
C(i)	73	Lin Cheung Rd (underpass)	Northbound	3	110	55	64%	0%	27%	0%	0%	0%	9%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.0970581	1.0280291	0.0001631	0.0017277
D(i)	73	Lin Cheung Rd (underpass)	Northbound	3	176	55	64%	0%	27%	0%	0%	0%	9%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.0970581	1.0280291	0.0002610	0.0027643
E(i)	72	Lin Cheung Rd (underpass)	Southbound	3	155	130	54%	0%	23%	0%	4%	0%	4%	4%	4%	4%	0%	0%	4%	0%	0%	0%	100%	0.0939265	1.1335754	0.0005257	0.0063449
F(i)	72	Lin Cheung Rd (depressed)	Southbound	3	172	130	54%	0%	23%	0%	4%	0%	4%	4%	4%	4%	0%	0%	4%	0%	0%	0%	100%	0.0939265	1.1335754	0.0005834	0.0070408
G(i)	118	Lin Cheung Rd (depressed)	Southbound	3	121	150	50%	0%	23%	0%	3%	3%	7%	3%	3%	3%	0%	0%	3%	0%	0%	0%	100%	0.1104808	1.3353208	0.0005570	0.0067322
H(i)	119	Austin Rd W (depressed)	Eastbound	3	173	230	26%	2%	54%	0%	2%	2%	4%	2%	0%	0%	0%	0%	0%	2%	2%	2%	100%	0.1490417	1.7540131	0.0016473	0.0193867
I(i)	117	Austin Rd W (depressed)	Eastbound	3	194	55	27%	0%	64%	0%	0%	0%	9%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.1741529	1.6384512	0.0005162	0.0048562
J(i)	116	Austin Rd W (depressed)	Westbound	3	194	70	29%	0%	57%	0%	0%	0%	7%	0%	0%	0%	7%	0%	0%	0%	0%	0%	100%	0.1665138	1.6021293	0.0006281	0.0060436
K(i)	114	Lin Cheung Rd (depressed)	Southbound	3	95	25	60%	0%	40%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.0887268	0.7213419	0.0000585	0.0004759
L(i)	112	Lin Cheung Rd (depressed)	Northbound	3	95	95	58%	0%	26%	0%	0%	0%	5%	5%	5%	0%	0%	0%	0%	0%	0%	0%	100%	0.0872000	0.8773389	0.0002186	0.0021994
M(i)	84	Lin Cheung Rd	Southbound	3	56	140	50%	0%	25%	0%	4%	4%	4%	4%	4%	4%	0%	0%	4%	0%	0%	0%	100%	0.1042185	1.2227209	0.0002270	0.0026628
N(i)	77	Lin Cheung Rd	Northbound	3	56	150	50%	0%	23%	0%	3%	3%	7%	3%	3%	3%	0%	0%	3%	0%	0%	0%	100%	0.1104808	1.3353208	0.0002578	0.0031157
O(i)	111	Austin Rd W (depressed)	Eastbound	3	52	190	18%	3%	58%	0%	3%	3%	5%	3%	0%	0%	0%	0%	0%	3%	3%	3%	100%	0.1628554	1.9802526	0.0004469	0.0054347
P(i)	110	Austin Rd W (depressed)	Westbound	3	52	95	37%	0%	58%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.1471108	1.3229804	0.0002019	0.0018154
W(ii)	98	West Kowloon Highway (WKH)	Northbound	2	1970	525	53%	0%	16%	0%	3%	2%	6%	4%	3%	2%	2%	0%	5%	2%	3%	0%	100%	0.0385875	1.0858022	0.0110859	0.3119419
	A	Internal Rd A	Bothbound	4	404	15	33%	0%	33%	0%	0%	0%	0%	0%	0%	0%	33%	0%	0%	0%	0%	0%	100%	0.0785591	0.9548754	0.0001322	0.0016074
	B	Internal Rd B	Bothbound	4	361	20	50%	0%	25%	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	0%	100%	0.0602288	0.7299638	0.0001208	0.0014640
	C	Internal Rd C	Bothbound	4	521	10	50%	0%	0%	0%	0%	0%	0%	0%	0%	0%	50%	0%	0%	0%	0%	0%	100%	0.1178386	1.4323130	0.0001705	0.0020729
X(i)	144	Reprovision of Gascoigne Rd Flyover	Westbound	3	180	315	35%	0%	11%	0%	6%	5%	13%	11%	2%	2%	2%	0%	0%	10%	5%	0%	100%	0.1200647	2.5928393	0.0018910	0.0408372

Note: (i): Tunnel name is based on Portal & top opening of underpass in EIA of Road Works in West Kowloon.

Note: Emission rate is calculated by emission factor provided by Vehicular Emission Control Section of EPD provided the vehicle fleet average emission factors for pollutants mulitplied by traffic flow of each roads.

Scenario 4

max

					Calculated by the formula shown (extracted from the approved EIA of Road Works at West Kowloon) Emission Rate - Portal/ Opening (g/s)		Volume source - calculated by number of portal/opening involved Emission Rate - Portal/ Opening (g/s) - Volume		Area source - calculated by emission rate divided by area Emission Rate - Portal/ Opening (g/m2-s) - Area source				
			Portal/ opening ID.	Source Type	PM	NOx	PM	NOx	PM	NOx	(Area)	Formula from Scenario	Emission calculation formula (Extracted from the approved EIA of Road Works at West Kowloon)
53.076	0.687		A	Area	7.4384E-05	0.0007879	–	–	1.5143E-07	1.604E-06	491.2	1	0.687 x Tunnel Section A
80.935	0.873		B	Area	0.00038163	0.0040421	–	–	1.1162E-06	1.1823E-05	341.9	1	0.873 x ((1 - 0.687) x Tunnel Section A + 1 x Tunnel Section B)
32.646	0.435		CE	Area	0.00032403	0.00377	–	–	5.1004E-07	5.9342E-06	635.3	1	0.435 x Tunnel Section C + 0.435 x (1 - 0.873) x (1 - 0.687) x Tunnel Section A + 0.435 x (1 - 0.873) x Tunnel Section B + 0.435 x Tunnel Section E
			D1-D7		0.00038447	0.0040723	3.6616E-05	0.00038784	–	–	–		
			D8-D14	Volume			1.8308E-05	0.00019392	–	–	–	1	(1 - 0.435) x Tunnel Section C + (1 - 0.435) x (1 - 0.873) x (1 - 0.687) x Tunnel Section A + (1 - 0.435) x (1 - 0.873) x Tunnel Section B + (1 - 0.435) x Tun
30	0.400		F	Area	0.00035211	0.0042495	–	–	1.2689E-06	1.5314E-05	277.5	1	0.4 x (1 - 0.435) x Tunnel Section E + 0.4 x Tunnel Section F
			I1-I4		0.00333514	0.0383671	0.00055586	0.00639452	–	–	–	1	1 x Tunnel Section I + 1 x Tunnel Section G + 1 x Tunnel Section H + 0.14 x Tunnel Section K + (1 - 0.612) x 0.38 x Tunnel SectionO + (1 - 0.4) x (1 - 0.435) x
			I5-I8	Volume			0.00027793	0.00319726	–	–	–		Tunnel Section E + (1 - 0.4) x Tunnel Section F + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+ Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel
45.868	0.612		JKO1	Area	0.00077462	0.0083188	–	–	5.0212E-07	5.3924E-06	1542.7	1	0.612 x Tunnel Section J + 0.612 x (1 - 0.14) x Tunnel Section K + 0.612 x Tunnel Section O
			L1-L5		0.00040606	0.0043877	5.4142E-05	0.00058503	–	–	–		1 x Tunnel Section L + (1 - 0.612) x 0.24 x Tunnel Section J + (1 - 0.612) x 0.62 x Tunnel Section O + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+
			L6-L10	Volume			2.7071E-05	0.00029251	–	–	–	1	Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P
			M1-M4		0.00024238	0.0028893	4.0396E-05	0.00048155	–	–	–		
			M5-M8	Volume			2.0198E-05	0.00024077	–	–	–	1	0.5 x (Tunnel Section M + Tunnel Section N)
			N1-N4		0.00024238	0.0028893	4.0396E-05	0.00048155	–	–	–		
			N5-N8	Volume			2.0198E-05	0.00024077	–	–	–	1	0.5 x (Tunnel Section M + Tunnel Section N)
			P1-P4		0.00042811	0.0039596	7.1352E-05	0.00065993	–	–	–		1 x Tunnel Section P + (1 - 0.612) x 0.76 x Tunnel Section J + (1 - 0.612) x 0.86 x Tunnel Section K + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+
			P5-P8	Volume			3.5676E-05	0.00032997	–	–	–	1	Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P
			W1-W8		0.01108588	0.3119419	0.00092382	0.02599516	–	–	–		
			W9-W16	Volume			0.00046191	0.01299758	–	–	–	1	1 x Tunnel W
			701-710		0.00189102	0.0408372	0.00012607	0.00272248	–	–	–	1	
			711-720	Volume			6.3034E-05	0.00136124	–	–	–	–	1 x Tunnel X
			BaseA	Volume	0.00014119	0.0017147	0.00014119	0.00171474					1/3 x Basement roads A,B,C
	% of Serving Rd		BaseC		0.00014119	0.0017147	0.00014119	0.00171474					1/3 x Basement roads A,B,C
		Out of 500m	801-820	Volume			–	–	–	–	–	1	1 x Tunnel Y
		Out of 500m	901-903				–	–	–	–	–		1 x Tunnel Z
		Out of 500m	904-906	Volume			–	–	–	–	–	1	
		Out of 500m	V1	Point								from 1-4	–

Appendix 3.18d - Emission Rates of Portal, Top Openings and Ventilation Exhaust (Hr06-07)

Remarks (Tunnel name - Portal & top opening of underpass in EIA of Rd Works in WK)	WKCD section no.	Road name	Bound	Road Type	Length (m)	Total (veh/hr)	PC	taxi	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	Total	Rate (g/km-veh) PM	Rate (g/km-veh) NOx	Emission Rate (g/s) PM	Emission Rate (g/s) NOx
							Hr 06-07 (2015 EIA_19-12-2011.xls)																				
A(i)	73	Lin Cheung Rd (underpass)	Northbound	3	73	140	50%	0%	21%	0%	4%	4%	7%	4%	4%	4%	0%	0%	4%	0%	0%	0%	100%	0.1081115	1.3557014	0.0003069	0.0038487
B(i)	73	Lin Cheung Rd (underpass)	Northbound	3	272	140	50%	0%	21%	0%	4%	4%	7%	4%	4%	4%	0%	0%	4%	0%	0%	0%	100%	0.1081115	1.3557014	0.0011436	0.0143403
C(i)	73	Lin Cheung Rd (underpass)	Northbound	3	110	140	50%	0%	21%	0%	4%	4%	7%	4%	4%	4%	0%	0%	4%	0%	0%	0%	100%	0.1081115	1.3557014	0.0004625	0.0057994
D(i)	73	Lin Cheung Rd (underpass)	Northbound	3	176	140	50%	0%	21%	0%	4%	4%	7%	4%	4%	4%	0%	0%	4%	0%	0%	0%	100%	0.1081115	1.3557014	0.0007400	0.0092790
E(i)	72	Lin Cheung Rd (underpass)	Southbound	3	155	240	54%	0%	23%	0%	2%	2%	6%	4%	2%	2%	0%	0%	2%	2%	0%	0%	100%	0.0970157	1.2597501	0.0010025	0.0130174
F(i)	72	Lin Cheung Rd (depressed)	Southbound	3	172	240	54%	0%	23%	0%	2%	2%	6%	4%	2%	2%	0%	0%	2%	2%	0%	0%	100%	0.0970157	1.2597501	0.0011124	0.0144451
G(i)	118	Lin Cheung Rd (depressed)	Southbound	3	121	285	53%	2%	25%	0%	2%	2%	5%	4%	4%	2%	0%	0%	2%	2%	0%	0%	100%	0.0933683	1.1684203	0.0008944	0.0111925
H(i)	119	Austin Rd W (depressed)	Eastbound	3	173	230	24%	2%	57%	0%	2%	2%	4%	2%	0%	0%	0%	0%	0%	2%	2%	2%	100%	0.1484276	1.7677545	0.0016405	0.0195386
I(i)	117	Austin Rd W (depressed)	Eastbound	3	194	55	27%	0%	64%	0%	0%	0%	9%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.1682295	1.6125588	0.0004986	0.0047794
J(i)	116	Austin Rd W (depressed)	Westbound	3	194	70	29%	0%	57%	0%	0%	0%	7%	0%	0%	0%	7%	0%	0%	0%	0%	0%	100%	0.1611435	1.5786187	0.0006079	0.0059549
K(i)	114	Lin Cheung Rd (depressed)	Southbound	3	95	55	64%	0%	27%	0%	0%	0%	9%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.0943519	1.0162219	0.0001369	0.0014749
L(i)	112	Lin Cheung Rd (depressed)	Northbound	3	95	215	51%	2%	23%	0%	2%	2%	7%	2%	2%	2%	0%	0%	2%	2%	0%	0%	100%	0.1004855	1.3425969	0.0005701	0.0076174
M(i)	84	Lin Cheung Rd	Southbound	3	56	255	53%	0%	25%	0%	2%	2%	6%	4%	2%	2%	0%	0%	2%	2%	0%	0%	100%	0.0995059	1.2528920	0.0003947	0.0049698
N(i)	77	Lin Cheung Rd	Northbound	3	56	300	52%	2%	25%	0%	2%	2%	7%	3%	2%	2%	2%	0%	2%	2%	0%	0%	100%	0.1014731	1.2752009	0.0004735	0.0059509
O(i)	111	Austin Rd W (depressed)	Eastbound	3	52	190	18%	3%	58%	0%	3%	3%	5%	3%	0%	0%	0%	0%	0%	3%	3%	3%	100%	0.1574671	1.9567890	0.0004322	0.0053703
P(i)	110	Austin Rd W (depressed)	Westbound	3	52	95	32%	0%	63%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.1525056	1.3861474	0.0002093	0.0019021
W(ii)	98	West Kowloon Highway (WKH)	Northbound	2	1970	1060	51%	0%	17%	0%	2%	2%	6%	3%	3%	2%	2%	0%	5%	2%	3%	0%	100%	0.0606065	1.5378068	0.0351551	0.8920134
	A	Internal Rd A	Bothbound	4	404	20	50%	0%	25%	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	0%	100%	0.0602259	0.7300918	0.0001352	0.0016387
	B	Internal Rd B	Bothbound	4	361	35	43%	0%	29%	0%	0%	0%	0%	0%	0%	0%	29%	0%	0%	0%	0%	0%	100%	0.0680821	0.8264940	0.0002389	0.0029008
	C	Internal Rd C	Bothbound	4	521	20	25%	0%	25%	0%	0%	0%	0%	0%	0%	0%	50%	0%	0%	0%	0%	0%	100%	0.1165277	1.4187265	0.0003373	0.0041064
X(i)	144	Reprovision of Gascoigne Rd Flyover	Westbound	3	180	665	33%	1%	11%	1%	7%	5%	13%	11%	2%	2%	1%	0%	1%	9%	5%	1%	100%	0.1198887	2.5771269	0.0039863	0.0856895

Note: (i): Tunnel name is based on Portal & top opening of underpass in EIA of Road Works in West Kowloon.

Note: Emission rate is calculated by emission factor provided by Vehicular Emission Control Section of EPD provided the vehicle fleet average emission factors for pollutants mulitplied by traffic flow of each roads.

Scenario 4

max

					Calculated by the formula shown (extracted from the approved EIA of Road Works at West Kowloon)		Volume source - calculated by number of portal/opening involved		Area source - calculated by emission rate divided by area				
					Emission Rate - Portal/ Opening (g/s)		Emission Rate - Portal/ Opening (g/s) - Volume		Emission Rate - Portal/ Opening (g/m2-s) - Area source				
			Portal/ opening ID.	Source Type	PM	NOx	PM	NOx	PM	NOx	(Area)	Formula from Scenario	Emission calculation formula (Extracted from the approved EIA of Road Works at West Kowloon)
53.076	0.687		A	Area	0.0002109	0.0026447	--	--	4.2937E-07	5.3842E-06	491.2	1	0.687 x Tunnel Section A
80.935	0.873		B	Area	0.00108204	0.0135686	--	--	3.1648E-06	3.9686E-05	341.9	1	0.873 x ((1 - 0.687) x Tunnel Section A + 1 x Tunnel Section B)
32.646	0.435		CE	Area	0.00070625	0.0090506	--	--	1.1117E-06	1.4246E-05	635.3	1	0.435 x Tunnel Section C + 0.435 x (1 - 0.873) x (1 - 0.687) x Tunnel Section A + 0.435 x (1 - 0.873) x Tunnel Section B + 0.435 x Tunnel Section E
			D1-D7		0.00109011	0.0136698	0.00010382	0.00130188	--	--	--		
			D8-D14	Volume			5.191E-05	0.00065094	--	--	--	1	(1 - 0.435) x Tunnel Section C + (1 - 0.435) x (1 - 0.873) x (1 - 0.687) x Tunnel Section A + (1 - 0.435) x (1 - 0.873) x Tunnel Section B + (1 - 0.435) x Tun
30	0.400		F	Area	0.00067143	0.0087185	--	--	2.4196E-06	3.1418E-05	277.5	1	0.4 x (1 - 0.435) x Tunnel Section E + 0.4 x Tunnel Section F
			I1-I4		0.00413753	0.049865	0.00068959	0.00831083	--	--	--	1	1 x Tunnel Section I + 1 x Tunnel Section G + 1 x Tunnel Section H + 0.14 x Tunnel Section K + (1 - 0.612) x 0.38 x Tunnel SectionO + (1 - 0.4) x (1 - 0.435) x
			I5-I8	Volume			0.00034479	0.00415542	--	--	--		Tunnel Section E + (1 - 0.4) x Tunnel Section F + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+ Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel
45.868	0.612		JKO1	Area	0.0008531	0.0094645	--	--	5.5299E-07	6.135E-06	1542.7	1	0.612 x Tunnel Section J + 0.612 x (1 - 0.14) x Tunnel Section K + 0.612 x Tunnel Section O
			L1-L5		0.00078511	0.0099864	0.00010468	0.00133152	--	--	--		1 x Tunnel Section L + (1 - 0.612) x 0.24 x Tunnel Section J + (1 - 0.612) x 0.62 x Tunnel Section O + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+
			L6-L10	Volume			5.2341E-05	0.00066578	--	--	--	1	Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P
			M1-M4		0.00043412	0.0054604	7.2354E-05	0.00091006	--	--	--		
			M5-M8	Volume			3.6177E-05	0.00045503	--	--	--	1	0.5 x (Tunnel Section M + Tunnel Section N)
			N1-N4		0.00043412	0.0054604	7.2354E-05	0.00091006	--	--	--		
			N5-N8	Volume			3.6177E-05	0.00045503	--	--	--	1	0.5 x (Tunnel Section M + Tunnel Section N)
			P1-P4		0.00045844	0.004474	7.6406E-05	0.00074567	--	--	--		1 x Tunnel Section P + (1 - 0.612) x 0.76 x Tunnel Section J + (1 - 0.612) x 0.86 x Tunnel Section K + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+
			P5-P8	Volume			3.8203E-05	0.00037284	--	--	--	1	Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P
			W1-W8		0.03515512	0.8920134	0.00292959	0.07433445	--	--	--		
			W9-W16	Volume			0.0014648	0.03716722	--	--	--	1	1 x Tunnel W
			701-710		0.0039863	0.0856895	0.00026575	0.00571263	--	--	--	1	
			711-720	Volume			0.00013288	0.00285632	--	--	--	--	1 x Tunnel X
			BaseA	Volume	0.00023714	0.0028819	0.00023714	0.00288195					1/3 x Basement roads A,B,C
	% of Serving Rd		BaseC		0.00023714	0.0028819	0.00023714	0.00288195					1/3 x Basement roads A,B,C
		Out of 500m	801-820	Volume			--	--	--	--	--	1	1 x Tunnel Y
		Out of 500m	901-903				--	--	--	--	--		1 x Tunnel Z
		Out of 500m	904-906	Volume			--	--	--	--	--	1	
		Out of 500m	V1	Point								from 1-4	--

Appendix 3.18d - Emission Rates of Portal, Top Openings and Ventilation Exhaust (Hr07-08)

Remarks (Tunnel name - Portal & top opening of underpass in EIA of Rd Works in WK)	WKCD section no.	Road name	Bound	Road Type	Length (m)	Total (veh/hr)	Hr 07-08 (2015 EIA_19-12-2011.xls)																	Rate (g/km-		Emission Rate (g/s)	
							PC	taxi	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	Total	PM	NOx	PM	NOx
A(I)	73	Lin Cheung Rd (underpass)	Northbound	3	73	190	53%	0%	24%	0%	3%	3%	5%	3%	3%	3%	0%	0%	3%	3%	0%	0%	100%	0.0983881	1.3092533	0.0003791	0.0050443
B(I)	73	Lin Cheung Rd (underpass)	Northbound	3	272	190	53%	0%	24%	0%	3%	3%	5%	3%	3%	3%	0%	0%	3%	3%	0%	0%	100%	0.0983881	1.3092533	0.0014124	0.0187951
C(I)	73	Lin Cheung Rd (underpass)	Northbound	3	110	190	53%	0%	24%	0%	3%	3%	5%	3%	3%	3%	0%	0%	3%	3%	0%	0%	100%	0.0983881	1.3092533	0.0005712	0.0076009
D(I)	73	Lin Cheung Rd (underpass)	Northbound	3	176	190	53%	0%	24%	0%	3%	3%	5%	3%	3%	3%	0%	0%	3%	3%	0%	0%	100%	0.0983881	1.3092533	0.0009139	0.0121615
E(I)	72	Lin Cheung Rd (underpass)	Southbound	3	155	615	52%	1%	24%	0%	2%	2%	6%	3%	2%	2%	1%	0%	2%	2%	0%	1%	100%	0.0980281	1.2558395	0.0025957	0.0332536
F(I)	72	Lin Cheung Rd (depressed)	Southbound	3	172	615	52%	1%	24%	0%	2%	2%	6%	3%	2%	2%	1%	0%	2%	2%	0%	1%	100%	0.0980281	1.2558395	0.0028804	0.0369007
G(I)	118	Lin Cheung Rd (depressed)	Southbound	3	121	750	51%	1%	24%	1%	2%	2%	6%	3%	3%	2%	1%	0%	2%	1%	0%	1%	100%	0.0989166	1.2331750	0.0024935	0.0310863
H(I)	119	Austin Rd W (depressed)	Eastbound	3	173	950	24%	2%	57%	0%	2%	2%	4%	2%	1%	1%	1%	0%	1%	1%	2%	2%	100%	0.1529852	1.7603536	0.0069842	0.0803650
I(I)	117	Austin Rd W (depressed)	Eastbound	3	194	280	25%	2%	55%	0%	2%	2%	4%	2%	2%	0%	0%	0%	2%	2%	2%	2%	100%	0.1486270	1.7441715	0.0022426	0.0263176
J(I)	116	Austin Rd W (depressed)	Westbound	3	194	280	25%	2%	54%	0%	2%	2%	4%	2%	2%	0%	2%	0%	2%	2%	2%	2%	100%	0.1483998	1.7608600	0.0022392	0.0265694
K(I)	114	Lin Cheung Rd (depressed)	Southbound	3	95	165	45%	3%	24%	0%	3%	3%	6%	3%	3%	3%	0%	0%	3%	3%	0%	0%	100%	0.1063910	1.4684505	0.0004632	0.0063939
L(I)	112	Lin Cheung Rd (depressed)	Northbound	3	95	320	53%	2%	25%	0%	2%	2%	6%	3%	3%	2%	0%	0%	2%	2%	0%	0%	100%	0.0964757	1.1908753	0.0008147	0.0100563
M(I)	84	Lin Cheung Rd	Southbound	3	56	645	51%	1%	24%	0%	2%	2%	6%	3%	2%	2%	1%	0%	2%	2%	0%	1%	100%	0.1018044	1.2926960	0.0010214	0.0129700
N(I)	77	Lin Cheung Rd	Northbound	3	56	465	52%	1%	24%	0%	2%	2%	6%	3%	2%	2%	1%	0%	2%	1%	0%	1%	100%	0.1010955	1.2592016	0.0007313	0.0091082
O(I)	111	Austin Rd W (depressed)	Eastbound	3	52	785	25%	1%	57%	0%	1%	1%	4%	2%	1%	1%	1%	0%	1%	1%	2%	3%	100%	0.1488055	1.6842114	0.0016873	0.0190971
P(I)	110	Austin Rd W (depressed)	Westbound	3	52	430	26%	1%	55%	0%	1%	1%	5%	1%	1%	1%	1%	0%	1%	1%	2%	2%	100%	0.1489656	1.7654596	0.0009252	0.0109655
W(I)	98	West Kowloon Highway (WKH)	Northbound	2	1970	1575	51%	0%	17%	0%	2%	2%	6%	3%	3%	3%	2%	0%	5%	2%	3%	0%	100%	0.0613596	1.5130225	0.0528843	1.3040362
	A	Internal Rd A	Bothbound	4	404	30	50%	0%	33%	0%	0%	0%	0%	0%	0%	0%	17%	0%	0%	0%	0%	0%	100%	0.1380794	1.2327271	0.0004649	0.0041502
	B	Internal Rd B	Bothbound	4	361	60	33%	0%	25%	0%	8%	0%	0%	8%	0%	0%	25%	0%	0%	0%	0%	0%	100%	0.1730856	1.7471376	0.0010414	0.0105119
	C	Internal Rd C	Bothbound	4	521	25	20%	0%	20%	0%	0%	0%	0%	0%	0%	0%	60%	0%	0%	0%	0%	0%	100%	0.2563377	2.5515727	0.0009274	0.0092317
X(I)	144	Reprovision of Gascoigne Rd Flyover	Westbound	3	180	1325	33%	0%	11%	1%	7%	5%	13%	10%	2%	2%	1%	0%	1%	9%	5%	1%	100%	0.1212756	2.6406536	0.0080345	0.1749433

Note: (I): Tunnel name is based on Portal & top opening of underpass in EIA of Road Works in West Kowloon.

Note: Emission rate is calculated by emission factor provided by Vehicular Emission Control Section of EPD provided the vehicle fleet average emission factors for pollutants mulitplied by traffic flow of each roads.

Scenario 4

max

			Portal/ opening ID.	Source Type	Calculated by the formula shown (extracted from the approved EIA of Road Works at West Kowloon) Emission Rate - Portal/ Opening (g/s)		Volume source - calculated by number of portal/opening involved Emission Rate - Portal/ Opening (g/s) - Volume		Area source - calculated by emission rate divided by area Emission Rate - Portal/ Opening (g/m2-s) - Area source			Formula from Scenario	Emission calculation formula (Extracted from the approved EIA of Road Works at West Kowloon)
					PM	NOx	PM	NOx	PM	NOx	(Area)		
53.076	0.687		A	Area	0.00026049	0.0034663	--	--	5.303E-07	7.0568E-06	491.2	1	0.687 x Tunnel Section A
80.935	0.873		B	Area	0.00133641	0.0177836	--	--	3.9088E-06	5.2014E-05	341.9	1	0.873 x ((1 - 0.687) x Tunnel Section A + 1 x Tunnel Section B)
32.646	0.435		CE	Area	0.00146319	0.0189103	--	--	2.3031E-06	2.9766E-05	635.3	1	0.435 x Tunnel Section C + 0.435 x (1 - 0.873) x (1 - 0.687) x Tunnel Section A + 0.435 x (1 - 0.873) x Tunnel Section B + 0.435 x Tunnel Section E
			D1-D7		0.00134637	0.0179162	0.00012823	0.00170631	--	--	--		
			D8-D14	Volume			6.4113E-05	0.00085315	--	--	--	1	(1 - 0.435) x Tunnel Section C + (1 - 0.435) x (1 - 0.873) x (1 - 0.687) x Tunnel Section A + (1 - 0.435) x (1 - 0.873) x Tunnel Section B + (1 - 0.435) x Tun
30	0.400		F	Area	0.00173849	0.0222719	--	--	6.2648E-06	8.0259E-05	277.5	1	0.4 x (1 - 0.435) x Tunnel Section E + 0.4 x Tunnel Section F
			I1-I4		0.01472764	0.1756364	0.00245461	0.02927274	--	--	--	1	1 x Tunnel Section I + 1 x Tunnel Section G + 1 x Tunnel Section H + 0.14 x Tunnel Section K + (1 - 0.612) x 0.38 x Tunnel SectionO + (1 - 0.4) x (1 - 0.435) x
			I5-I8	Volume			0.0012273	0.01463637	--	--	--		Tunnel Section E + (1 - 0.4) x Tunnel Section F + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+ Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel
45.868	0.612		JKO1	Area	0.0031411	0.0361622	--	--	2.0361E-06	2.3441E-05	1542.7	1	0.612 x Tunnel Section J + 0.612 x (1 - 0.14) x Tunnel Section K + 0.612 x Tunnel Section O
			L1-L5		0.00152766	0.018717	0.00020369	0.0024956	--	--	--		1 x Tunnel Section L + (1 - 0.612) x 0.24 x Tunnel Section J + (1 - 0.612) x 0.62 x Tunnel Section O + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+
			L6-L10	Volume			0.00010184	0.0012478	--	--	--	1	Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P
			M1-M4		0.00087635	0.0110391	0.00014606	0.00183986	--	--	--		
			M5-M8	Volume			7.3029E-05	0.00091993	--	--	--	1	0.5 x (Tunnel Section M + Tunnel Section N)
			N1-N4		0.00087635	0.0110391	0.00014606	0.00183986	--	--	--		
			N5-N8	Volume			7.3029E-05	0.00091993	--	--	--	1	0.5 x (Tunnel Section M + Tunnel Section N)
			P1-P4		0.00187255	0.0217078	0.00031209	0.00361797	--	--	--		1 x Tunnel Section P + (1 - 0.612) x 0.76 x Tunnel Section J + (1 - 0.612) x 0.86 x Tunnel Section K + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+
			P5-P8	Volume			0.00015605	0.00180899	--	--	--	1	Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P
			W1-W8		0.05288432	1.3040362	0.00440703	0.10866969	--	--	--		
			W9-W16	Volume			0.00220351	0.05433484	--	--	--	1	1 x Tunnel W
			701-710		0.00803451	0.1749433	0.00053563	0.01166289	--	--	--	1	
			711-720	Volume			0.00026782	0.00583144	--	--	--	--	1 x Tunnel X
			BaseA	Volume	0.00081124	0.0079646	0.00081124	0.00796462					1/3 x Basement roads A,B,C
	% of Serving Rd		BaseC		0.00081124	0.0079646	0.00081124	0.00796462					1/3 x Basement roads A,B,C
		Out of 500m	801-820	Volume			--	--	--	--	--	1	1 x Tunnel Y
		Out of 500m	901-903				--	--	--	--	--		1 x Tunnel Z
		Out of 500m	904-906	Volume			--	--	--	--	--	1	
		Out of 500m	V1	Point								from 1-4	--

Appendix 3.18d - Emission Rates of Portal, Top Openings and Ventilation Exhaust (Hr08-09)

Remarks (Tunnel name - Portal & top opening of underpass in EIA of Rd Works in WK)	WKCD section no.	Road name	Bound	Road Type	Length (m)	Total (veh/hr)	PC	taxi	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	Total	Rate (g/km-veh) PM	Rate (g/km-veh) NOx	Emission Rate (g/s) PM	Emission Rate (g/s) NOx
							Hr 08-09 (2015 EIA_19-12-2011.xls)																				
A(i)	73	Lin Cheung Rd (underpass)	Northbound	3	273	385	51%	1%	23%	0%	3%	3%	6%	3%	3%	3%	1%	0%	3%	1%	0%	0%	100%	0.1201489	1.4407644	0.0009380	0.0112480
B(i)	73	Lin Cheung Rd (underpass)	Northbound	3	272	385	51%	1%	23%	0%	3%	3%	6%	3%	3%	3%	1%	0%	3%	1%	0%	0%	100%	0.1201489	1.4407644	0.0034950	0.0419102
C(i)	73	Lin Cheung Rd (underpass)	Northbound	3	110	385	51%	1%	23%	0%	3%	3%	6%	3%	3%	3%	1%	0%	3%	1%	0%	0%	100%	0.1201489	1.4407644	0.0014134	0.0169490
D(i)	73	Lin Cheung Rd (underpass)	Northbound	3	176	385	51%	1%	23%	0%	3%	3%	6%	3%	3%	3%	1%	0%	3%	1%	0%	0%	100%	0.1201489	1.4407644	0.0022615	0.0271184
E(i)	72	Lin Cheung Rd (underpass)	Southbound	3	155	1215	51%	1%	24%	0%	2%	2%	6%	3%	2%	2%	1%	0%	2%	2%	0%	0%	100%	0.1167078	1.4026321	0.0061053	0.0733752
F(i)	72	Lin Cheung Rd (depressed)	Southbound	3	172	1215	51%	1%	24%	0%	2%	2%	6%	3%	2%	2%	1%	0%	2%	2%	0%	0%	100%	0.1167078	1.4026321	0.0067749	0.0814228
G(i)	118	Lin Cheung Rd (depressed)	Southbound	3	121	1505	51%	1%	24%	0%	2%	2%	6%	3%	3%	2%	1%	0%	2%	2%	0%	0%	100%	0.1148200	1.3773529	0.0058061	0.0696730
H(i)	119	Austin Rd W (depressed)	Eastbound	3	173	1435	23%	2%	58%	0%	1%	1%	4%	2%	1%	1%	0%	0%	1%	1%	2%	2%	100%	0.1719684	1.8790136	0.0118589	0.1295763
I(i)	117	Austin Rd W (depressed)	Eastbound	3	194	400	24%	1%	58%	0%	1%	1%	4%	3%	1%	0%	0%	0%	1%	1%	3%	3%	100%	0.1687920	1.8971826	0.0036384	0.0408948
J(i)	116	Austin Rd W (depressed)	Westbound	3	194	400	24%	1%	56%	0%	1%	1%	4%	1%	1%	0%	3%	0%	1%	1%	3%	3%	100%	0.1706781	1.9329541	0.0036791	0.0416659
K(i)	114	Lin Cheung Rd (depressed)	Southbound	3	95	295	53%	2%	25%	0%	2%	2%	7%	3%	2%	2%	0%	0%	2%	2%	0%	0%	100%	0.1146854	1.3530218	0.0008928	0.0105329
L(i)	112	Lin Cheung Rd (depressed)	Northbound	3	95	685	50%	1%	24%	0%	2%	2%	7%	3%	3%	2%	1%	0%	2%	1%	0%	1%	100%	0.1172186	1.3964640	0.0021189	0.0252430
M(i)	84	Lin Cheung Rd	Southbound	3	56	1305	51%	1%	24%	0%	2%	2%	6%	3%	3%	2%	1%	0%	2%	2%	0%	0%	100%	0.1167217	1.3848659	0.0023694	0.0281128
N(i)	77	Lin Cheung Rd	Northbound	3	56	960	51%	1%	24%	0%	2%	2%	6%	3%	3%	3%	1%	0%	3%	2%	0%	1%	100%	0.1184768	1.4240655	0.0017693	0.0212660
O(i)	111	Austin Rd W (depressed)	Eastbound	3	52	1205	23%	2%	58%	0%	1%	1%	4%	2%	1%	0%	0%	0%	1%	1%	2%	2%	100%	0.1699619	1.8582016	0.0029583	0.0323430
P(i)	110	Austin Rd W (depressed)	Westbound	3	52	645	23%	2%	57%	0%	2%	2%	5%	2%	1%	1%	1%	0%	1%	1%	2%	2%	100%	0.1719585	1.8928938	0.0016021	0.0176355
W(ii)	98	West Kowloon Highway (WKH)	Northbound	2	1970	4145	51%	0%	17%	0%	2%	2%	6%	3%	3%	2%	2%	0%	5%	2%	3%	0%	100%	0.0631257	1.5196290	0.1431840	3.4468774
	A	Internal Rd A	Bothbound	4	404	50	40%	0%	30%	0%	0%	0%	0%	10%	0%	0%	20%	0%	0%	0%	0%	0%	100%	0.1729363	1.4952900	0.0009704	0.0083902
	B	Internal Rd B	Bothbound	4	361	85	35%	0%	24%	0%	6%	0%	6%	6%	0%	0%	24%	0%	0%	0%	0%	0%	100%	0.2081043	2.0551660	0.0017738	0.0175174
	C	Internal Rd C	Bothbound	4	521	35	29%	0%	14%	0%	0%	0%	0%	0%	0%	0%	57%	0%	0%	0%	0%	0%	100%	0.2364946	2.3544629	0.0011979	0.0119260
X(i)	144	Reprovision of Gascoigne Rd Flyover	Westbound	3	180	1680	33%	1%	11%	1%	7%	5%	13%	10%	2%	1%	1%	0%	1%	9%	5%	1%	100%	0.1407950	2.8390978	0.0118268	0.2384842

Note: (i): Tunnel name is based on Portal & top opening of underpass in EIA of Road Works in West Kowloon.

Note: Emission rate is calculated by emission factor provided by Vehicular Emission Control Section of EPD provided the vehicle fleet average emission factors for pollutants mulitplied by traffic flow of each roads.

Scenario 4

max

					Calculated by the formula shown (extracted from the approved EIA of Road Works at West Kowloon)		Volume source - calculated by number of portal/opening involved		Area source - calculated by emission rate divided by area				
					Emission Rate - Portal/ Opening (g/s)		Emission Rate - Portal/ Opening (g/s) - Volume		Emission Rate - Portal/ Opening (g/m2-s) - Area source				
			Portal/ opening ID.	Source Type	PM	NOx	PM	NOx	PM	NOx	(Area)	Formula from Scenario	Emission calculation formula (Extracted from the approved EIA of Road Works at West Kowloon)
53.076	0.687		A	Area	0.00064457	0.0077293	–	–	1.3122E-06	1.5736E-05	491.2	1	0.687 x Tunnel Section A
80.935	0.873		B	Area	0.00330692	0.0396549	–	–	9.6722E-06	0.00011598	341.9	1	0.873 x ((1 - 0.687) x Tunnel Section A + 1 x Tunnel Section B)
32.646	0.435		CE	Area	0.00348233	0.0418296	–	–	5.4814E-06	6.5842E-05	635.3	1	0.435 x Tunnel Section C + 0.435 x (1 - 0.873) x (1 - 0.687) x Tunnel Section A + 0.435 x (1 - 0.873) x Tunnel Section B + 0.435 x Tunnel Section E
			D1-D7		0.00333157	0.0399505	0.00031729	0.00380481	–	–	–		
			D8-D14	Volume			0.00015865	0.00190241	–	–	–	1	(1 - 0.435) x Tunnel Section C + (1 - 0.435) x (1 - 0.873) x (1 - 0.687) x Tunnel Section A + (1 - 0.435) x (1 - 0.873) x Tunnel Section B + (1 - 0.435) x Tun
30	0.400		F	Area	0.00408906	0.0491437	–	–	1.4735E-05	0.00017709	277.5	1	0.4 x (1 - 0.435) x Tunnel Section E + 0.4 x Tunnel Section F
			I1-I4		0.02811868	0.321303	0.00468645	0.05355049	–	–	–	1	1 x Tunnel Section I + 1 x Tunnel Section G + 1 x Tunnel Section H + 0.14 x Tunnel Section K + (1 - 0.612) x 0.38 x Tunnel SectionO + (1 - 0.4) x (1 - 0.435) x
			I5-I8	Volume			0.00234322	0.02677525	–	–	–		Tunnel Section E + (1 - 0.4) x Tunnel Section F + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+ Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel
45.868	0.612		JKO1	Area	0.00533241	0.0585144	–	–	3.4565E-06	3.793E-05	1542.7	1	0.612 x Tunnel Section J + 0.612 x (1 - 0.14) x Tunnel Section K + 0.612 x Tunnel Section O
			L1-L5		0.00337638	0.03945	0.00045018	0.00526	–	–	–		1 x Tunnel Section L + (1 - 0.612) x 0.24 x Tunnel Section J + (1 - 0.612) x 0.62 x Tunnel Section O + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+
			L6-L10	Volume			0.00022509	0.00263	–	–	–	1	Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P
			M1-M4		0.00206935	0.0246894	0.00034489	0.0041149	–	–	–		
			M5-M8	Volume			0.00017245	0.00205745	–	–	–	1	0.5 x (Tunnel Section M + Tunnel Section N)
			N1-N4		0.00206935	0.0246894	0.00034489	0.0041149	–	–	–		
			N5-N8	Volume			0.00017245	0.00205745	–	–	–	1	0.5 x (Tunnel Section M + Tunnel Section N)
			P1-P4		0.00317668	0.0346238	0.00052945	0.00577064	–	–	–		1 x Tunnel Section P + (1 - 0.612) x 0.76 x Tunnel Section J + (1 - 0.612) x 0.86 x Tunnel Section K + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+
			P5-P8	Volume			0.00026472	0.00288532	–	–	–	1	Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P
			W1-W8		0.14318403	3.4468774	0.011932	2.8723978	–	–	–		
			W9-W16	Volume			0.005966	0.14361989	–	–	–	1	1 x Tunnel W
			701-710		0.01182678	0.2384842	0.00078845	0.01589895	–	–	–	1	
			711-720	Volume			0.00039423	0.00794947	–	–	–	–	1 x Tunnel X
			BaseA	Volume	0.00131403	0.0126112	0.00131403	0.01261123					1/3 x Basement roads A,B,C
	% of Serving Rd		BaseC		0.00131403	0.0126112	0.00131403	0.01261123					1/3 x Basement roads A,B,C
		Out of 500m	801-820	Volume			–	–	–	–	–	1	1 x Tunnel Y
		Out of 500m	901-903				–	–	–	–	–		1 x Tunnel Z
		Out of 500m	904-906	Volume			–	–	–	–	–	1	
		Out of 500m	V1	Point								from 1-4	–

Appendix 3.18d - Emission Rates of Portal, Top Openings and Ventilation Exhaust (Hr09-10)

Remarks (Tunnel name - Portal & top opening of underpass in EIA of Rd Works in WK)	WKCD section no.	Road name	Bound	Road Type	Length (m)	Total (veh/hr)	PC	taxi	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	Total	Rate (g/km-veh) PM	Rate (g/km-veh) NOx	Emission Rate (g/s) PM	Emission Rate (g/s) NOx
							Hr 09-10 (2015 EIA_19-12-2011.xls)																				
A(i)	73	Lin Cheung Rd (underpass)	Northbound	3	273	380	50%	1%	24%	0%	3%	3%	7%	3%	3%	3%	1%	0%	3%	1%	0%	0%	100%	0.1249897	1.4787662	0.0009631	0.0113947
B(i)	73	Lin Cheung Rd (underpass)	Northbound	3	272	380	50%	1%	24%	0%	3%	3%	7%	3%	3%	3%	1%	0%	3%	1%	0%	0%	100%	0.1249897	1.4787662	0.0035886	0.0424570
C(i)	73	Lin Cheung Rd (underpass)	Northbound	3	110	380	50%	1%	24%	0%	3%	3%	7%	3%	3%	3%	1%	0%	3%	1%	0%	0%	100%	0.1249897	1.4787662	0.0014513	0.0171701
D(i)	73	Lin Cheung Rd (underpass)	Northbound	3	176	380	50%	1%	24%	0%	3%	3%	7%	3%	3%	3%	1%	0%	3%	1%	0%	0%	100%	0.1249897	1.4787662	0.0023220	0.0274722
E(i)	72	Lin Cheung Rd (underpass)	Southbound	3	155	986	51%	1%	24%	0%	2%	2%	6%	3%	3%	3%	1%	0%	3%	2%	0%	1%	100%	0.1211567	1.4332808	0.0051448	0.0608630
F(i)	72	Lin Cheung Rd (depressed)	Southbound	3	172	986	51%	1%	24%	0%	2%	2%	6%	3%	3%	3%	1%	0%	3%	2%	0%	1%	100%	0.1211567	1.4332808	0.0057091	0.0675383
G(i)	118	Lin Cheung Rd (depressed)	Southbound	3	121	1230	50%	1%	24%	0%	2%	2%	6%	3%	3%	2%	1%	0%	2%	2%	0%	0%	100%	0.1199153	1.4192033	0.0049575	0.0586722
H(i)	119	Austin Rd W (depressed)	Eastbound	3	173	1456	22%	2%	59%	0%	1%	1%	4%	2%	1%	1%	0%	0%	1%	1%	2%	2%	100%	0.1781594	1.9129040	0.0124670	0.1338584
I(i)	117	Austin Rd W (depressed)	Eastbound	3	194	406	23%	1%	58%	0%	1%	1%	4%	3%	1%	0%	0%	0%	1%	1%	2%	2%	100%	0.1750981	1.9417582	0.0038325	0.0425002
J(i)	116	Austin Rd W (depressed)	Westbound	3	194	401	22%	1%	57%	0%	1%	1%	4%	1%	1%	0%	4%	0%	1%	1%	2%	2%	100%	0.1794183	2.0092829	0.0038767	0.0434145
K(i)	114	Lin Cheung Rd (depressed)	Southbound	3	95	284	51%	2%	25%	0%	3%	2%	6%	3%	2%	2%	0%	0%	2%	2%	0%	0%	100%	0.1178027	1.4026281	0.0008842	0.0105279
L(i)	112	Lin Cheung Rd (depressed)	Northbound	3	95	705	51%	1%	24%	0%	2%	2%	6%	3%	3%	2%	1%	0%	2%	1%	0%	1%	100%	0.1196141	1.3978110	0.0022256	0.0260089
M(i)	84	Lin Cheung Rd	Southbound	3	56	1088	51%	1%	24%	0%	2%	2%	6%	3%	3%	2%	1%	0%	2%	1%	0%	0%	100%	0.1211000	1.4093701	0.0020499	0.0238565
N(i)	77	Lin Cheung Rd	Northbound	3	56	975	50%	1%	24%	0%	2%	2%	6%	3%	3%	3%	1%	0%	3%	2%	0%	1%	100%	0.1217139	1.4371498	0.0018462	0.0217991
O(i)	111	Austin Rd W (depressed)	Eastbound	3	52	1233	22%	2%	59%	0%	1%	1%	4%	2%	1%	0%	0%	0%	1%	1%	2%	2%	100%	0.1762200	1.8941014	0.0031389	0.0337386
P(i)	110	Austin Rd W (depressed)	Westbound	3	52	650	22%	2%	58%	0%	2%	2%	5%	2%	1%	1%	1%	0%	1%	1%	2%	2%	100%	0.1792959	1.9438496	0.0016842	0.0182593
W(ii)	98	West Kowloon Highway (WKH)	Northbound	2	1970	3591	50%	0%	17%	0%	2%	2%	7%	3%	3%	3%	2%	0%	5%	2%	3%	0%	100%	0.0644040	1.5391149	0.1265607	3.0245239
	A	Internal Rd A	Bothbound	4	404	79	36%	0%	26%	1%	5%	1%	3%	6%	1%	1%	19%	0%	0%	1%	0%	0%	100%	0.1905963	1.9044530	0.0016852	0.0168388
	B	Internal Rd B	Bothbound	4	361	134	34%	0%	24%	1%	5%	1%	3%	6%	1%	1%	23%	0%	0%	1%	0%	0%	100%	0.1971908	1.9763877	0.0026450	0.0265100
	C	Internal Rd C	Bothbound	4	521	61	22%	0%	16%	0%	3%	1%	2%	4%	1%	1%	50%	0%	0%	1%	0%	0%	100%	0.2498420	2.5507236	0.0021918	0.0223770
X(i)	144	Reprovision of Gascoigne Rd Flyover	Westbound	3	180	1685	33%	1%	11%	1%	7%	5%	13%	10%	2%	1%	1%	0%	1%	9%	5%	1%	100%	0.1463557	2.8843031	0.0123305	0.2430025

Note: (i): Tunnel name is based on Portal & top opening of underpass in EIA of Road Works in West Kowloon.

Note: Emission rate is calculated by emission factor provided by Vehicular Emission Control Section of EPD provided the vehicle fleet average emission factors for pollutants mulitplied by traffic flow of each roads.

Scenario 4

max

					Calculated by the formula shown (extracted from the approved EIA of Road Works at West Kowloon)		Volume source - calculated by number of portal/opening involved		Area source - calculated by emission rate divided by area				
					Emission Rate - Portal/ Opening (g/s)		Emission Rate - Portal/ Opening (g/s) - Volume		Emission Rate - Portal/ Opening (g/m2-s) - Area source				
			Portal/ opening ID.	Source Type	PM	NOx	PM	NOx	PM	NOx	(Area)	Formula from Scenario	Emission calculation formula (Extracted from the approved EIA of Road Works at West Kowloon)
53.076	0.687		A	Area	0.00066183	0.0078301	--	--	1.3474E-06	1.5941E-05	491.2	1	0.687 x Tunnel Section A
80.935	0.873		B	Area	0.00339548	0.0401722	--	--	9.9312E-06	0.0001175	341.9	1	0.873 x ((1 - 0.687) x Tunnel Section A + 1 x Tunnel Section B)
32.646	0.435		CE	Area	0.00308635	0.0365123	--	--	4.8581E-06	5.7473E-05	635.3	1	0.435 x Tunnel Section C + 0.435 x (1 - 0.873) x (1 - 0.687) x Tunnel Section A + 0.435 x (1 - 0.873) x Tunnel Section B + 0.435 x Tunnel Section E
			D1-D7		0.00342079	0.0404717	0.00032579	0.00385445	--	--	--		
			D8-D14	Volume			0.00016289	0.00192723	--	--	--	1	(1 - 0.435) x Tunnel Section C + (1 - 0.435) x (1 - 0.873) x (1 - 0.687) x Tunnel Section A + (1 - 0.435) x (1 - 0.873) x Tunnel Section B + (1 - 0.435) x Tun
30	0.400		F	Area	0.00344578	0.0407635	--	--	1.2417E-05	0.0001469	277.5	1	0.4 x (1 - 0.435) x Tunnel Section E + 0.4 x Tunnel Section F
			I1-I4		0.02720741	0.304659	0.00453457	0.0507765	--	--	--	1	1 x Tunnel Section I + 1 x Tunnel Section G + 1 x Tunnel Section H + 0.14 x Tunnel Section K + (1 - 0.612) x 0.38 x Tunnel SectionO + (1 - 0.4) x (1 - 0.435) x
			I5-I8	Volume			0.00226728	0.02538825	--	--	--		Tunnel Section E + (1 - 0.4) x Tunnel Section F + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+ Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel
45.868	0.612		JKO1	Area	0.00608517	0.0661207	--	--	3.9445E-06	4.286E-05	1542.7	1	0.612 x Tunnel Section J + 0.612 x (1 - 0.14) x Tunnel Section K + 0.612 x Tunnel Section O
			L1-L5		0.00368097	0.0427124	0.0004908	0.00569499	--	--	--		1 x Tunnel Section L + (1 - 0.612) x 0.24 x Tunnel Section J + (1 - 0.612) x 0.62 x Tunnel Section O + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+
			L6-L10	Volume			0.0002454	0.00284749	--	--	--	1	Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P
			M1-M4		0.00194803	0.0228278	0.00032467	0.00380463	--	--	--		
			M5-M8	Volume			0.00016234	0.00190232	--	--	--	1	0.5 x (Tunnel Section M + Tunnel Section N)
			N1-N4		0.00194803	0.0228278	0.00032467	0.00380463	--	--	--		
			N5-N8	Volume			0.00016234	0.00190232	--	--	--	1	0.5 x (Tunnel Section M + Tunnel Section N)
			P1-P4		0.00343571	0.0365419	0.00057262	0.00609032	--	--	--		1 x Tunnel Section P + (1 - 0.612) x 0.76 x Tunnel Section J + (1 - 0.612) x 0.86 x Tunnel Section K + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+
			P5-P8	Volume			0.00028631	0.00304516	--	--	--	1	Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P
			W1-W8		0.12656074	3.0245239	0.01054673	0.25204366	--	--	--		
			W9-W16	Volume			0.00527336	0.12602183	--	--	--	1	1 x Tunnel W
			701-710		0.01233047	0.2430025	0.00082203	0.01620017	--	--	--	1	
			711-720	Volume			0.00041102	0.00810008	--	--	--	--	1 x Tunnel X
			BaseA	Volume	0.00217401	0.0219086	0.00217401	0.02190861					1/3 x Basement roads A,B,C
	% of Serving Rd		BaseC		0.00217401	0.0219086	0.00217401	0.02190861					1/3 x Basement roads A,B,C
		Out of 500m	801-820	Volume			--	--	--	--	--	1	1 x Tunnel Y
		Out of 500m	901-903				--	--	--	--	--		1 x Tunnel Z
		Out of 500m	904-906	Volume			--	--	--	--	--	1	
		Out of 500m	V1	Point								from 1-4	--

Appendix 3.18d - Emission Rates of Portal, Top Openings and Ventilation Exhaust (Hr10-11)

							Hr 10-11 (2015 EIA_19-12-2011.xls)																	Rate (g/km-		Emission Rate (g/s)	
Remarks (Tunnel name - Portal & top opening of underpass in EIA of Rd Works in WK)	WKCD section no.	Road name	Bound	Road Type	Length (m)	Total (veh/hr)	PC	taxi	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	Total	PM	NOx	PM	NOx
A[(I)]	73	Lin Cheung Rd (underpass)	Northbound	3	73	335	49%	1%	22%	0%	3%	3%	6%	3%	3%	3%	1%	0%	3%	1%	0%	0%	100%	0.1262512	1.5175550	0.0008576	0.0103088
B[(I)]	73	Lin Cheung Rd (underpass)	Northbound	3	272	335	49%	1%	22%	0%	3%	3%	6%	3%	3%	3%	1%	0%	3%	1%	0%	0%	100%	0.1262512	1.5175550	0.0031956	0.0384110
C[(I)]	73	Lin Cheung Rd (underpass)	Northbound	3	110	335	49%	1%	22%	0%	3%	3%	6%	3%	3%	3%	1%	0%	3%	1%	0%	0%	100%	0.1262512	1.5175550	0.0012923	0.0155339
D[(I)]	73	Lin Cheung Rd (underpass)	Northbound	3	176	335	49%	1%	22%	0%	3%	3%	6%	3%	3%	3%	1%	0%	3%	1%	0%	0%	100%	0.1262512	1.5175550	0.0020677	0.0248542
E[(I)]	72	Lin Cheung Rd (underpass)	Southbound	3	155	735	52%	1%	24%	0%	2%	2%	6%	3%	3%	2%	1%	0%	3%	1%	0%	1%	100%	0.1224588	1.4292669	0.0038753	0.0452303
F[(I)]	72	Lin Cheung Rd (depressed)	Southbound	3	172	735	52%	1%	24%	0%	2%	2%	6%	3%	3%	2%	1%	0%	3%	1%	0%	1%	100%	0.1224588	1.4292669	0.0043003	0.0501911
G[(I)]	118	Lin Cheung Rd (depressed)	Southbound	3	121	905	51%	1%	24%	1%	2%	2%	6%	3%	3%	2%	1%	0%	2%	2%	0%	1%	100%	0.1204179	1.4169757	0.0036629	0.0431016
H[(I)]	119	Austin Rd W (depressed)	Eastbound	3	173	1425	24%	2%	58%	0%	1%	1%	4%	2%	1%	1%	0%	0%	1%	1%	2%	2%	100%	0.1763572	1.8766803	0.0120768	0.1285135
I[(I)]	117	Austin Rd W (depressed)	Eastbound	3	194	405	25%	1%	57%	0%	1%	1%	4%	2%	1%	0%	0%	0%	1%	1%	2%	2%	100%	0.1724208	1.9217716	0.0037631	0.0419427
J[(I)]	116	Austin Rd W (depressed)	Westbound	3	194	405	25%	1%	56%	0%	1%	1%	4%	1%	1%	0%	2%	0%	1%	1%	2%	2%	100%	0.1743272	1.9588750	0.0038047	0.0427524
K[(I)]	114	Lin Cheung Rd (depressed)	Southbound	3	95	205	49%	2%	24%	0%	2%	2%	5%	5%	2%	2%	0%	0%	2%	2%	0%	0%	100%	0.1189213	1.4490713	0.0006433	0.0078391
L[(I)]	112	Lin Cheung Rd (depressed)	Northbound	3	95	555	51%	2%	24%	0%	2%	2%	6%	3%	3%	2%	1%	0%	2%	2%	0%	1%	100%	0.1181199	1.3881040	0.0017300	0.0203299
M[(I)]	84	Lin Cheung Rd	Southbound	3	56	780	51%	1%	25%	0%	2%	3%	6%	3%	3%	2%	1%	0%	3%	1%	0%	1%	100%	0.1235803	1.4164610	0.0014994	0.0171864
N[(I)]	77	Lin Cheung Rd	Northbound	3	56	790	51%	1%	24%	0%	2%	2%	6%	3%	3%	3%	1%	0%	3%	1%	0%	1%	100%	0.1237291	1.4379412	0.0015205	0.0176707
O[(I)]	111	Austin Rd W (depressed)	Eastbound	3	52	1190	24%	2%	58%	0%	1%	1%	4%	2%	1%	0%	0%	0%	1%	1%	2%	3%	100%	0.1750260	1.9054963	0.0030085	0.0327534
P[(I)]	110	Austin Rd W (depressed)	Westbound	3	52	640	23%	2%	57%	0%	2%	2%	5%	2%	1%	1%	1%	0%	1%	1%	2%	2%	100%	0.1775428	1.9422847	0.0016413	0.0179553
W[(I)]	98	West Kowloon Highway (WKH)	Northbound	2	1970	3140	50%	0%	17%	0%	2%	2%	6%	3%	3%	2%	2%	0%	5%	2%	3%	0%	100%	0.0632495	1.5224591	0.1086801	2.6160077
	A	Internal Rd A	Bothbound	4	404	55	36%	0%	27%	0%	9%	0%	0%	9%	0%	0%	18%	0%	0%	0%	0%	0%	100%	0.1746258	1.6526518	0.0010778	0.0102005
	B	Internal Rd B	Bothbound	4	361	95	37%	0%	26%	0%	5%	0%	5%	5%	0%	0%	21%	0%	0%	0%	0%	0%	100%	0.2030834	1.9538961	0.0019347	0.0186136
	C	Internal Rd C	Bothbound	4	521	35	29%	0%	14%	0%	0%	0%	0%	0%	0%	0%	57%	0%	0%	0%	0%	0%	100%	0.2371532	2.3500970	0.0012012	0.0119039
X[(I)]	144	Reprovision of Gascoigne Rd Flyover	Westbound	3	180	1670	33%	1%	11%	1%	7%	4%	13%	10%	2%	1%	1%	0%	1%	9%	5%	1%	100%	0.1487671	2.9494200	0.0124221	0.2462766

Note: (I): Tunnel name is based on Portal & top opening of underpass in EIA of Road Works in West Kowloon.

Note: Emission rate is calculated by emission factor provided by Vehicular Emission Control Section of EPD provided the vehicle fleet average emission factors for pollutants mulitplied by traffic flow of each roads.

Scenario 4 max

					Calculated by the formula shown (extracted from the approved EIA of Road Works at West Kowloon) — Emission Rate - Portal/ Opening (g/s)		Volume source - calculated by number of portal/opening involved — Emission Rate - Portal/ Opening (g/s) - Volume		Area source - calculated by emission rate divided by area — Emission Rate - Portal/ Opening (g/m2-s) - Area source				
			Portal/ opening ID.	Source Type	PM	NOx	PM	NOx	PM	NOx	(Area)	Formula from Scenario	Emission calculation formula (Extracted from the approved EIA of Road Works at West Kowloon)
53.076	0.687		A	Area	0.00058934	0.007084	--	--	1.1998E-06	1.4422E-05	491.2	1	0.687 x Tunnel Section A
80.935	0.873		B	Area	0.00302359	0.036344	--	--	8.8435E-06	0.0001063	341.9	1	0.873 x ((1 - 0.687) x Tunnel Section A + 1 x Tunnel Section B)
32.646	0.435		CE	Area	0.002441	0.0287529	--	--	3.8423E-06	4.5259E-05	635.3	1	0.435 x Tunnel Section C + 0.435 x (1 - 0.873) x (1 - 0.687) x Tunnel Section A + 0.435 x (1 - 0.873) x Tunnel Section B + 0.435 x Tunnel Section E
			D1-D7		0.00304614	0.0366149	0.00029011	0.00348713	--	--	--		
			D8-D14	Volume			0.00014505	0.00174357	--	--	--	1	(1 - 0.435) x Tunnel Section C + (1 - 0.435) x (1 - 0.873) x (1 - 0.687) x Tunnel Section A + (1 - 0.435) x (1 - 0.873) x Tunnel Section B + (1 - 0.435) x Tun
30	0.400		F	Area	0.00259552	0.0302934	--	--	9.3532E-06	0.00010917	277.5	1	0.4 x (1 - 0.435) x Tunnel Section E + 0.4 x Tunnel Section F
			I1-I4		0.02406827	0.2662384	0.00401138	0.04437307	--	--	--	1	1 x Tunnel Section I + 1 x Tunnel Section G + 1 x Tunnel Section H + 0.14 x Tunnel Section K + (1 - 0.612) x 0.38 x Tunnel SectionO + (1 - 0.4) x (1 - 0.435) x
			I5-I8	Volume			0.00200569	0.02218653	--	--	--		Tunnel Section E + (1 - 0.4) x Tunnel Section F + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+ Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel
45.868	0.612		JKO1	Area	0.00536413	0.058601	--	--	3.4771E-06	3.7986E-05	1542.7	1	0.612 x Tunnel Section J + 0.612 x (1 - 0.14) x Tunnel Section K + 0.612 x Tunnel Section O
			L1-L5		0.00299841	0.0349246	0.00039979	0.00465662	--	--	--		1 x Tunnel Section L + (1 - 0.612) x 0.24 x Tunnel Section J + (1 - 0.612) x 0.62 x Tunnel Section O + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+
			L6-L10	Volume			0.00019989	0.00232831	--	--	--	1	Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P
			M1-M4		0.00150997	0.0174285	0.00025166	0.00290476	--	--	--		
			M5-M8	Volume			0.00012583	0.00145238	--	--	--	1	0.5 x (Tunnel Section M + Tunnel Section N)
			N1-N4		0.00150997	0.0174285	0.00025166	0.00290476	--	--	--		
			N5-N8	Volume			0.00012583	0.00145238	--	--	--	1	0.5 x (Tunnel Section M + Tunnel Section N)
			P1-P4		0.00319758	0.0344367	0.00053293	0.00573946	--	--	--		1 x Tunnel Section P + (1 - 0.612) x 0.76 x Tunnel Section J + (1 - 0.612) x 0.86 x Tunnel Section K + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+
			P5-P8	Volume			0.00026646	0.00286973	--	--	--	1	Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P
			W1-W8		0.10868014	2.6160077	0.00905668	0.21800064	--	--	--		
			W9-W16	Volume			0.00452834	0.10900032	--	--	--	1	1 x Tunnel W
			701-710		0.01242206	0.2462766	0.00082814	0.01641844	--	--	--	1	
			711-720	Volume			0.00041407	0.00820922	--	--	--	--	1 x Tunnel X
			BaseA	Volume	0.00140458	0.0135727	0.00140458	0.01357267					1/3 x Basement roads A,B,C
	% of Serving Rd		BaseC		0.00140458	0.0135727	0.00140458	0.01357267					1/3 x Basement roads A,B,C
		Out of 500m	801-820	Volume			--	--	--	--	--	1	1 x Tunnel Y
		Out of 500m	901-903				--	--	--	--	--		1 x Tunnel Z
		Out of 500m	904-906	Volume			--	--	--	--	--	1	
		Out of 500m	V1	Point								from 1-4	--

Appendix 3.18d - Emission Rates of Portal, Top Openings and Ventilation Exhaust (Hr11-12)

Remarks (Tunnel name - Portal & top opening of underpass in EIA of Rd Works in WK)	WKCD section no.	Road name	Bound	Road Type	Length (m)	Total (veh/hr)	PC	taxi	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	Total	Rate (g/km-veh) PM	Rate (g/km-veh) NOx	Emission Rate (g/s) PM	Emission Rate (g/s) NOx
							Hr 11-12 (2015 EIA_19-12-2011.xls)																				
A(I)	73	Lin Cheung Rd (underpass)	Northbound	3	273	265	51%	2%	23%	0%	4%	2%	6%	4%	2%	2%	2%	0%	2%	2%	0%	0%	100%	0.1149823	1.3998324	0.0006179	0.0075222
B(I)	73	Lin Cheung Rd (underpass)	Northbound	3	272	265	51%	2%	23%	0%	4%	2%	6%	4%	2%	2%	2%	0%	2%	2%	0%	0%	100%	0.1149823	1.3998324	0.0023022	0.0280278
C(I)	73	Lin Cheung Rd (underpass)	Northbound	3	110	265	51%	2%	23%	0%	4%	2%	6%	4%	2%	2%	2%	0%	2%	2%	0%	0%	100%	0.1149823	1.3998324	0.0009310	0.0113348
D(I)	73	Lin Cheung Rd (underpass)	Northbound	3	176	265	51%	2%	23%	0%	4%	2%	6%	4%	2%	2%	2%	0%	2%	2%	0%	0%	100%	0.1149823	1.3998324	0.0014897	0.0181356
E(I)	72	Lin Cheung Rd (underpass)	Southbound	3	155	735	53%	1%	24%	0%	2%	2%	6%	3%	2%	2%	1%	0%	2%	1%	0%	1%	100%	0.1151255	1.3383639	0.0036432	0.0423536
F(I)	72	Lin Cheung Rd (depressed)	Southbound	3	172	735	53%	1%	24%	0%	2%	2%	6%	3%	2%	2%	1%	0%	2%	1%	0%	1%	100%	0.1151255	1.3383639	0.0040428	0.0469989
G(I)	118	Lin Cheung Rd (depressed)	Southbound	3	121	885	51%	1%	24%	1%	2%	2%	6%	3%	3%	2%	1%	0%	2%	2%	0%	1%	100%	0.1137843	1.3521385	0.0033846	0.0402205
H(I)	119	Austin Rd W (depressed)	Eastbound	3	173	1385	25%	1%	56%	0%	1%	1%	4%	2%	1%	1%	0%	0%	1%	1%	2%	2%	100%	0.1688537	1.8055075	0.0112384	0.1201691
I(I)	117	Austin Rd W (depressed)	Eastbound	3	194	400	26%	1%	55%	0%	1%	1%	4%	3%	1%	0%	0%	0%	1%	1%	3%	3%	100%	0.1649965	1.8596684	0.0035566	0.0400862
J(I)	116	Austin Rd W (depressed)	Westbound	3	194	420	27%	1%	54%	0%	1%	1%	4%	1%	1%	0%	2%	0%	1%	1%	2%	2%	100%	0.1644221	1.8491397	0.0037214	0.0418522
K(I)	114	Lin Cheung Rd (depressed)	Southbound	3	95	200	48%	3%	25%	0%	3%	3%	5%	5%	3%	3%	0%	0%	3%	3%	0%	0%	100%	0.1182355	1.4507647	0.0006240	0.0076568
L(I)	112	Lin Cheung Rd (depressed)	Northbound	3	95	430	51%	1%	23%	0%	2%	2%	6%	3%	2%	2%	1%	0%	2%	1%	0%	1%	100%	0.1166714	1.3612459	0.0013239	0.0154464
M(I)	84	Lin Cheung Rd	Southbound	3	56	750	52%	1%	25%	0%	2%	2%	6%	3%	3%	2%	1%	0%	2%	1%	0%	1%	100%	0.1160938	1.3369325	0.0013544	0.0155975
N(I)	77	Lin Cheung Rd	Northbound	3	56	605	51%	1%	24%	0%	2%	2%	6%	3%	2%	2%	1%	0%	2%	2%	0%	1%	100%	0.1163359	1.3867050	0.0010949	0.0130504
O(I)	111	Austin Rd W (depressed)	Eastbound	3	52	1145	25%	2%	56%	0%	1%	1%	4%	2%	1%	0%	0%	0%	1%	1%	2%	2%	100%	0.1693787	1.8231642	0.0028013	0.0301531
P(I)	110	Austin Rd W (depressed)	Westbound	3	52	635	26%	2%	54%	0%	2%	2%	5%	2%	1%	1%	1%	0%	1%	1%	2%	2%	100%	0.1677059	1.8604224	0.0015382	0.0170642
W(I)	98	West Kowloon Highway (WKH)	Northbound	2	1970	3195	51%	0%	16%	0%	2%	2%	6%	4%	3%	2%	2%	0%	5%	2%	3%	0%	100%	0.0617470	1.4910877	0.1079569	2.6069805
	A	Internal Rd A	Bothbound	4	404	50	40%	0%	30%	0%	0%	0%	0%	10%	0%	0%	20%	0%	0%	0%	0%	0%	100%	0.1735904	1.4895423	0.0009740	0.0083580
	B	Internal Rd B	Bothbound	4	361	95	37%	0%	26%	0%	5%	0%	5%	5%	0%	0%	21%	0%	0%	0%	0%	0%	100%	0.2030667	1.9541474	0.0019945	0.0186160
	C	Internal Rd C	Bothbound	4	521	35	29%	0%	14%	0%	0%	0%	0%	0%	0%	0%	57%	0%	0%	0%	0%	0%	100%	0.2370515	2.3486783	0.0012007	0.0118967
X(I)	144	Reprovision of Gascoigne Rd Flyover	Westbound	3	180	1655	34%	1%	11%	1%	7%	5%	13%	11%	2%	1%	1%	0%	1%	9%	5%	1%	100%	0.1416055	2.8319594	0.0117179	0.2343446

Note: (I): Tunnel name is based on Portal & top opening of underpass in EIA of Road Works in West Kowloon.

Note: Emission rate is calculated by emission factor provided by Vehicular Emission Control Section of EPD provided the vehicle fleet average emission factors for pollutants mulitplied by traffic flow of each roads.

Scenario 4

max

				Calculated by the formula shown (extracted from the approved EIA of Road Works at West Kowloon)		Volume source - calculated by number of portal/opening involved		Area source - calculated by emission rate divided by area				
				Emission Rate - Portal/ Opening (g/s)		Emission Rate - Portal/ Opening (g/s) - Volume		Emission Rate - Portal/ Opening (g/m2-s) - Area source				
			Portal/ opening ID.	Source Type	PM	NOx	PM	NOx	PM	NOx	(Area)	Formula from Scenario	Emission calculation formula (Extracted from the approved EIA of Road Works at West Kowloon)
53.076	0.687		A	Area	0.00042458	0.005169	--	--	8.6438E-07	1.0523E-05	491.2	1	0.687 x Tunnel Section A
80.935	0.873		B	Area	0.00217831	0.0265195	--	--	8.3712E-06	7.7565E-05	341.9	1	0.873 x ((1 - 0.687) x Tunnel Section A + 1 x Tunnel Section B)
32.646	0.435		CE	Area	0.00212915	0.0250503	--	--	3.3514E-06	3.9431E-05	635.3	1	0.435 x Tunnel Section C + 0.435 x (1 - 0.873) x (1 - 0.687) x Tunnel Section A + 0.435 x (1 - 0.873) x Tunnel Section B + 0.435 x Tunnel Section E
			D1-D7		0.00219455	0.0267172	0.000209	0.00254449	--	--	--		
			D8-D14	Volume			0.0001045	0.00127225	--	--	--	1	(1 - 0.435) x Tunnel Section C + (1 - 0.435) x (1 - 0.873) x (1 - 0.687) x Tunnel Section A + (1 - 0.435) x (1 - 0.873) x Tunnel Section B + (1 - 0.435) x Tun
30	0.400		F	Area	0.00244009	0.0283667	--	--	8.7931E-06	0.00010222	277.5	1	0.4 x (1 - 0.435) x Tunnel Section E + 0.4 x Tunnel Section F
			I1-I4		0.02248584	0.2498262	0.00374764	0.04163769	--	--	--	1	1 x Tunnel Section I + 1 x Tunnel Section G + 1 x Tunnel Section H + 0.14 x Tunnel Section K + (1 - 0.612) x 0.38 x Tunnel SectionO + (1 - 0.4) x (1 - 0.435) x
			I5-I8	Volume			0.00187382	0.02081885	--	--	--		Tunnel Section E + (1 - 0.4) x Tunnel Section F + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+ Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel
45.868	0.612		JKO1	Area	0.00515505	0.0559877	--	--	3.3416E-06	3.6292E-05	1542.7	1	0.612 x Tunnel Section J + 0.612 x (1 - 0.14) x Tunnel Section K + 0.612 x Tunnel Section O
			L1-L5		0.00250161	0.0290999	0.00033355	0.00387998	--	--	--		1 x Tunnel Section L + (1 - 0.612) x 0.24 x Tunnel Section J + (1 - 0.612) x 0.62 x Tunnel Section O + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+
			L6-L10	Volume			0.00016677	0.00193999	--	--	--	1	Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P
			M1-M4		0.00122464	0.014324	0.00020411	0.00238733	--	--	--		
			M5-M8	Volume			0.00010205	0.00119367	--	--	--	1	0.5 x (Tunnel Section M + Tunnel Section N)
			N1-N4		0.00122464	0.014324	0.00020411	0.00238733	--	--	--		
			N5-N8	Volume			0.00010205	0.00119367	--	--	--	1	0.5 x (Tunnel Section M + Tunnel Section N)
			P1-P4		0.00307588	0.0332417	0.00051265	0.00554028	--	--	--		1 x Tunnel Section P + (1 - 0.612) x 0.76 x Tunnel Section J + (1 - 0.612) x 0.86 x Tunnel Section K + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+
			P5-P8	Volume			0.00025632	0.00277014	--	--	--	1	Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P
			W1-W8		0.10795692	2.6069805	0.00899641	0.21724837	--	--	--		
			W9-W16	Volume			0.00449821	0.10862419	--	--	--	1	1 x Tunnel W
			701-710		0.01171785	0.2343446	0.00078119	0.01562298	--	--	--	1	
			711-720	Volume			0.0003906	0.00781149	--	--	--	--	1 x Tunnel X
			BaseA	Volume	0.00136975	0.0129569	0.00136975	0.01295689					1/3 x Basement roads A,B,C
	% of Serving Rd		BaseC		0.00136975	0.0129569	0.00136975	0.01295689					1/3 x Basement roads A,B,C
		Out of 500m	801-820	Volume			--	--	--	--	--	1	1 x Tunnel Y
		Out of 500m	901-903				--	--	--	--	--		1 x Tunnel Z
		Out of 500m	904-906	Volume			--	--	--	--	--	1	
		Out of 500m	V1	Point								from 1-4	--

Appendix 3.18d - Emission Rates of Portal, Top Openings and Ventilation Exhaust (Hr12-13)

							Hr 12-13 (2015 EIA_19-12-2011.xls)																	Rate (g/km-		Emission Rate (g/s)	
Remarks (Tunnel name - Portal & top opening of underpass in EIA of Rd Works in WK)	WKCD section no.	Road name	Bound	Road Type	Length (m)	Total (veh/hr)	PC	taxi	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	Total	PM	NOx	PM	NOx
A(I)	73	Lin Cheung Rd (underpass)	Northbound	3	73	275	53%	2%	22%	0%	4%	2%	5%	4%	2%	2%	2%	0%	2%	2%	0%	0%	100%	0.1115212	1.3522164	0.0006219	0.0075405
B(I)	73	Lin Cheung Rd (underpass)	Northbound	3	272	275	53%	2%	22%	0%	4%	2%	5%	4%	2%	2%	2%	0%	2%	2%	0%	0%	100%	0.1115212	1.3522164	0.0023172	0.0280961
C(I)	73	Lin Cheung Rd (underpass)	Northbound	3	110	275	53%	2%	22%	0%	4%	2%	5%	4%	2%	2%	2%	0%	2%	2%	0%	0%	100%	0.1115212	1.3522164	0.0009371	0.0113624
D(I)	73	Lin Cheung Rd (underpass)	Northbound	3	176	275	53%	2%	22%	0%	4%	2%	5%	4%	2%	2%	2%	0%	2%	2%	0%	0%	100%	0.1115212	1.3522164	0.0014993	0.0181798
E(I)	72	Lin Cheung Rd (underpass)	Southbound	3	155	620	52%	1%	23%	0%	2%	2%	6%	4%	2%	2%	1%	0%	2%	2%	0%	1%	100%	0.1148323	1.3586054	0.0030654	0.0362672
F(I)	72	Lin Cheung Rd (depressed)	Southbound	3	172	620	52%	1%	23%	0%	2%	2%	6%	4%	2%	2%	1%	0%	2%	2%	0%	1%	100%	0.1148323	1.3586054	0.0034016	0.0402449
G(I)	118	Lin Cheung Rd (depressed)	Southbound	3	121	720	52%	1%	23%	1%	2%	2%	6%	4%	2%	2%	1%	0%	2%	1%	0%	1%	100%	0.1132003	1.3205377	0.0027394	0.0319570
H(I)	119	Austin Rd W (depressed)	Eastbound	3	173	1145	27%	1%	54%	0%	1%	1%	4%	2%	1%	1%	0%	0%	1%	1%	2%	2%	100%	0.1655421	1.7884494	0.0091087	0.0984069
I(I)	117	Austin Rd W (depressed)	Eastbound	3	194	340	28%	1%	53%	0%	1%	1%	4%	3%	1%	0%	0%	0%	1%	1%	1%	1%	100%	0.1661145	1.7972764	0.0030436	0.0329301
J(I)	116	Austin Rd W (depressed)	Westbound	3	194	365	29%	1%	52%	0%	1%	1%	4%	1%	1%	0%	3%	0%	1%	1%	1%	1%	100%	0.1664142	1.7891971	0.0032733	0.0351925
K(I)	114	Lin Cheung Rd (depressed)	Southbound	3	95	110	64%	0%	32%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.0981950	0.8909022	0.0002850	0.0025861
L(I)	112	Lin Cheung Rd (depressed)	Northbound	3	95	415	51%	1%	23%	0%	2%	2%	6%	4%	2%	2%	1%	0%	2%	1%	0%	1%	100%	0.1185754	1.3887175	0.0012986	0.0152084
M(I)	84	Lin Cheung Rd	Southbound	3	56	620	52%	1%	23%	0%	2%	2%	6%	4%	2%	2%	1%	0%	2%	2%	0%	1%	100%	0.1172912	1.3848692	0.0011312	0.0133563
N(I)	77	Lin Cheung Rd	Northbound	3	56	590	52%	1%	24%	0%	3%	2%	6%	3%	3%	2%	1%	0%	3%	2%	0%	1%	100%	0.1173109	1.3980316	0.0010767	0.0128308
O(I)	111	Austin Rd W (depressed)	Eastbound	3	52	935	27%	2%	54%	0%	2%	2%	4%	2%	1%	1%	1%	0%	1%	2%	2%	2%	100%	0.1644126	1.7735435	0.0022205	0.0239527
P(I)	110	Austin Rd W (depressed)	Westbound	3	52	525	28%	1%	52%	0%	2%	2%	5%	2%	1%	1%	1%	0%	1%	1%	2%	2%	100%	0.1673237	1.8281113	0.0012689	0.0138632
W(I)	98	West Kowloon Highway (WKH)	Northbound	2	1970	2710	53%	0%	16%	0%	2%	2%	6%	4%	3%	2%	2%	0%	5%	2%	3%	0%	100%	0.0598529	1.4669904	0.0887602	2.1755061
	A	Internal Rd A	Bothbound	4	404	45	44%	0%	33%	0%	0%	0%	0%	0%	0%	0%	22%	0%	0%	0%	0%	0%	100%	0.1699591	1.4821729	0.0008583	0.0074850
	B	Internal Rd B	Bothbound	4	361	80	38%	0%	25%	0%	6%	0%	0%	6%	0%	0%	25%	0%	0%	0%	0%	0%	100%	0.1802252	1.7106099	0.0014458	0.0137229
	C	Internal Rd C	Bothbound	4	521	35	29%	0%	14%	0%	0%	0%	0%	0%	0%	0%	57%	0%	0%	0%	0%	0%	100%	0.2369078	2.3433221	0.0012000	0.0118696
X(I)	144	Reprovision of Gascoigne Rd Flyover	Westbound	3	180	1635	34%	1%	11%	1%	7%	4%	12%	11%	2%	1%	1%	0%	1%	9%	5%	1%	100%	0.1401460	2.8205301	0.0114569	0.2305783

Note: (I): Tunnel name is based on Portal & top opening of underpass in EIA of Road Works in West Kowloon.

Note: Emission rate is calculated by emission factor provided by Vehicular Emission Control Section of EPD provided the vehicle fleet average emission factors for pollutants mulitplied by traffic flow of each roads.

Scenario 4 max

				Calculated by the formula shown (extracted from the approved EIA of Road Works at West Kowloon)		Volume source - calculated by number of portal/opening involved		Area source - calculated by emission rate divided by area				
				Emission Rate - Portal/ Opening (g/s)		Emission Rate - Portal/ Opening (g/s) - Volume		Emission Rate - Portal/ Opening (g/m2-s) - Area source				
		Portal/ opening ID.	Source Type	PM	NOx	PM	NOx	PM	NOx	(Area)	Formula from Scenario	Emission calculation formula (Extracted from the approved EIA of Road Works at West Kowloon)
53.076	0.687	A	Area	0.00042734	0.0051816	--	--	8.7E-07	1.0549E-05	491.2	1	0.687 x Tunnel Section A
80.935	0.873	B	Area	0.00219247	0.0265841	--	--	6.4126E-06	7.7754E-05	341.9	1	0.873 x ((1 - 0.687) x Tunnel Section A + 1 x Tunnel Section B)
32.646	0.435	CE	Area	0.00188115	0.0224171	--	--	2.961E-06	3.5286E-05	635.3	1	0.435 x Tunnel Section C + 0.435 x (1 - 0.873) x (1 - 0.687) x Tunnel Section A + 0.435 x (1 - 0.873) x Tunnel Section B + 0.435 x Tunnel Section E
		D1-D7		0.00220881	0.0267823	0.00021036	0.00255069	--	--	--		
		D8-D14	Volume			0.00010518	0.00127535	--	--	--	1	(1 - 0.435) x Tunnel Section C + (1 - 0.435) x (1 - 0.873) x (1 - 0.687) x Tunnel Section A + (1 - 0.435) x (1 - 0.873) x Tunnel Section B + (1 - 0.435) x Tun
30	0.400	F	Area	0.00205307	0.0242903	--	--	7.3984E-06	8.7533E-05	277.5	1	0.4 x (1 - 0.435) x Tunnel Section E + 0.4 x Tunnel Section F
		I1-I4		0.01845953	0.2047542	0.00307659	0.0341257	--	--	--	1	1 x Tunnel Section I + 1 x Tunnel Section G + 1 x Tunnel Section H + 0.14 x Tunnel Section K + (1 - 0.612) x 0.38 x Tunnel SectionO + (1 - 0.4) x (1 - 0.435) x
		I5-I8	Volume			0.00153829	0.01706285	--	--	--		Tunnel Section E + (1 - 0.4) x Tunnel Section F + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+ Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel
45.868	0.612	JKO1	Area	0.00422409	0.0442749	--	--	2.7381E-06	2.87E-05	1542.7	1	0.612 x Tunnel Section J + 0.612 x (1 - 0.14) x Tunnel Section K + 0.612 x Tunnel Section O
		L1-L5		0.00228555	0.0262989	0.00030474	0.00350652	--	--	--		1 x Tunnel Section L + (1 - 0.612) x 0.24 x Tunnel Section J + (1 - 0.612) x 0.62 x Tunnel Section O + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+
		L6-L10	Volume			0.00015237	0.00175326	--	--	--	1	Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P
		M1-M4		0.00110393	0.0130936	0.00018399	0.00218226	--	--	--		
		M5-M8	Volume			9.1994E-05	0.00109113	--	--	--	1	0.5 x (Tunnel Section M + Tunnel Section N)
		N1-N4		0.00110393	0.0130936	0.00018399	0.00218226	--	--	--		
		N5-N8	Volume			9.1994E-05	0.00109113	--	--	--	1	0.5 x (Tunnel Section M + Tunnel Section N)
		P1-P4		0.00251646	0.0262302	0.00041941	0.0043717	--	--	--		1 x Tunnel Section P + (1 - 0.612) x 0.76 x Tunnel Section J + (1 - 0.612) x 0.86 x Tunnel Section K + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+
		P5-P8	Volume			0.0002097	0.00218585	--	--	--	1	Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P
		W1-W8		0.08876023	2.1755061	0.00739669	0.18129217	--	--	--		
		W9-W16	Volume			0.00369834	0.09064609	--	--	--	1	1 x Tunnel W
		701-710		0.01145693	0.2305783	0.0007638	0.01537189	--	--	--	1	
		711-720	Volume			0.0003819	0.00768594	--	--	--	--	1 x Tunnel X
		BaseA	Volume	0.00116803	0.0110258	0.00116803	0.01102581					1/3 x Basement roads A,B,C
% of Serving Rd		BaseC		0.00116803	0.0110258	0.00116803	0.01102581					1/3 x Basement roads A,B,C
	Out of 500m	801-820	Volume			--	--	--	--	--	1	1 x Tunnel Y
	Out of 500m	901-903				--	--	--	--	--		1 x Tunnel Z
	Out of 500m	904-906	Volume			--	--	--	--	--	1	
	Out of 500m	V1	Point								from 1-4	--

Appendix 3.18d - Emission Rates of Portal, Top Openings and Ventilation Exhaust (Hr13-14)

Remarks (Tunnel name - Portal & top opening of underpass in EIA of Rd Works in WK)	WKCD section no.	Road name	Bound	Road Type	Length (m)	Total (veh/hr)	PC	taxi	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	Total	Rate (g/km-veh) PM	Rate (g/km-veh) NOx	Emission Rate (g/s) PM	Emission Rate (g/s) NOx
							Hr 13-14 (2015 EIA_19-12-2011.xls)																				
A(i)	73	Lin Cheung Rd (underpass)	Northbound	3	273	355	52%	1%	23%	0%	3%	3%	6%	4%	1%	1%	1%	0%	3%	1%	0%	0%	100%	0.1205109	1.4308445	0.0008675	0.0103001
B(i)	73	Lin Cheung Rd (underpass)	Northbound	3	272	355	52%	1%	23%	0%	3%	3%	6%	4%	1%	1%	1%	0%	3%	1%	0%	0%	100%	0.1205109	1.4308445	0.0032324	0.0383784
C(i)	73	Lin Cheung Rd (underpass)	Northbound	3	110	355	52%	1%	23%	0%	3%	3%	6%	4%	1%	1%	1%	0%	3%	1%	0%	0%	100%	0.1205109	1.4308445	0.0013072	0.0155207
D(i)	73	Lin Cheung Rd (underpass)	Northbound	3	176	355	52%	1%	23%	0%	3%	3%	6%	4%	1%	1%	1%	0%	3%	1%	0%	0%	100%	0.1205109	1.4308445	0.0020915	0.0248331
E(i)	72	Lin Cheung Rd (underpass)	Southbound	3	155	620	54%	1%	23%	0%	2%	2%	6%	4%	2%	2%	1%	0%	2%	2%	0%	1%	100%	0.1107060	1.2881744	0.0029552	0.0343871
F(i)	72	Lin Cheung Rd (depressed)	Southbound	3	172	620	54%	1%	23%	0%	2%	2%	6%	4%	2%	2%	1%	0%	2%	2%	0%	1%	100%	0.1107060	1.2881744	0.0032794	0.0381586
G(i)	118	Lin Cheung Rd (depressed)	Southbound	3	121	705	53%	1%	23%	1%	3%	1%	6%	4%	2%	1%	1%	0%	2%	1%	0%	1%	100%	0.1124899	1.3189998	0.0026655	0.0312548
H(i)	119	Austin Rd W (depressed)	Eastbound	3	173	1110	29%	1%	53%	0%	1%	1%	5%	2%	1%	1%	0%	0%	0%	1%	1%	2%	100%	0.1614658	1.6962797	0.0086129	0.0904824
I(i)	117	Austin Rd W (depressed)	Eastbound	3	194	335	30%	1%	52%	0%	1%	1%	4%	3%	1%	0%	0%	0%	0%	1%	1%	1%	100%	0.1581962	1.6706572	0.0028559	0.0301600
J(i)	116	Austin Rd W (depressed)	Westbound	3	194	375	31%	1%	51%	0%	1%	1%	4%	3%	1%	0%	3%	0%	0%	1%	1%	1%	100%	0.1579677	1.6500713	0.0031923	0.0333452
K(i)	114	Lin Cheung Rd (depressed)	Southbound	3	95	95	63%	0%	32%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.1013909	0.9325919	0.0002542	0.0023380
L(i)	112	Lin Cheung Rd (depressed)	Northbound	3	95	470	53%	1%	23%	0%	2%	2%	5%	3%	2%	2%	1%	0%	2%	1%	0%	1%	100%	0.1127223	1.2877637	0.0013981	0.0159718
M(i)	84	Lin Cheung Rd	Southbound	3	56	585	53%	1%	24%	0%	3%	2%	5%	4%	2%	2%	1%	0%	2%	2%	0%	1%	100%	0.1111367	1.2941094	0.0010113	0.0117764
N(i)	77	Lin Cheung Rd	Northbound	3	56	715	52%	1%	23%	0%	3%	2%	6%	4%	2%	2%	1%	0%	2%	1%	0%	1%	100%	0.1144628	1.3362032	0.0012731	0.0148615
O(i)	111	Austin Rd W (depressed)	Eastbound	3	52	890	27%	2%	53%	0%	2%	2%	4%	2%	1%	1%	1%	0%	1%	2%	2%	2%	100%	0.1642927	1.7922519	0.0021121	0.0230404
P(i)	110	Austin Rd W (depressed)	Westbound	3	52	505	28%	1%	51%	0%	2%	2%	5%	2%	1%	1%	1%	0%	1%	1%	2%	2%	100%	0.1677224	1.8466717	0.0012234	0.0134704
W(i)	98	West Kowloon Highway (WKH)	Northbound	2	1970	2770	53%	0%	15%	0%	3%	2%	6%	4%	3%	2%	2%	0%	5%	2%	3%	0%	100%	0.0582986	1.4393940	0.0883694	2.1818415
	A	Internal Rd A	Bothbound	4	404	35	43%	0%	29%	0%	0%	0%	0%	0%	0%	0%	29%	0%	0%	0%	0%	0%	100%	0.1785564	1.6120202	0.0007013	0.0063317
	B	Internal Rd B	Bothbound	4	361	65	38%	0%	31%	0%	0%	0%	0%	8%	0%	0%	23%	0%	0%	0%	0%	0%	100%	0.1805212	1.5729374	0.0011766	0.0102525
	C	Internal Rd C	Bothbound	4	521	30	33%	0%	17%	0%	0%	0%	0%	0%	0%	0%	50%	0%	0%	0%	0%	0%	100%	0.2189680	2.1353673	0.0009507	0.0092711
X(i)	144	Reprovision of Gascoigne Rd Flyover	Westbound	3	180	1620	34%	0%	11%	1%	7%	4%	12%	11%	2%	1%	1%	0%	1%	10%	5%	1%	100%	0.1397600	2.7864835	0.0113206	0.2257052

Note: (i): Tunnel name is based on Portal & top opening of underpass in EIA of Road Works in West Kowloon.

Note: Emission rate is calculated by emission factor provided by Vehicular Emission Control Section of EPD provided the vehicle fleet average emission factors for pollutants mulitplied by traffic flow of each roads.

Scenario 4

max

					Calculated by the formula shown (extracted from the approved EIA of Road Works at West Kowloon)		Volume source - calculated by number of portal/opening involved		Area source - calculated by emission rate divided by area				
					Emission Rate - Portal/ Opening (g/s)		Emission Rate - Portal/ Opening (g/s) - Volume		Emission Rate - Portal/ Opening (g/m2-s) - Area source				
			Portal/ opening ID.	Source Type	PM	NOx	PM	NOx	PM	NOx	(Area)	Formula from Scenario	Emission calculation formula (Extracted from the approved EIA of Road Works at West Kowloon)
53.076	0.687		A	Area	0.00059613	0.0070779	–	–	1.2136E-06	1.441E-05	491.2	1	0.687 x Tunnel Section A
80.935	0.873		B	Area	0.00305842	0.0363131	–	–	8.9454E-06	0.00010621	341.9	1	0.873 x ((1 - 0.687) x Tunnel Section A + 1 x Tunnel Section B)
32.646	0.435		CE	Area	0.0020492	0.0240254	–	–	3.2256E-06	3.7817E-05	635.3	1	0.435 x Tunnel Section C + 0.435 x (1 - 0.873) x (1 - 0.687) x Tunnel Section A + 0.435 x (1 - 0.873) x Tunnel Section B + 0.435 x Tunnel Section E
			D1-D7		0.00308123	0.0365839	0.00029345	0.00348418	–	–	–		
			D8-D14	Volume			0.00014673	0.00174209	–	–	–	1	(1 - 0.435) x Tunnel Section C + (1 - 0.435) x (1 - 0.873) x (1 - 0.687) x Tunnel Section A + (1 - 0.435) x (1 - 0.873) x Tunnel Section B + (1 - 0.435) x Tun
30	0.400		F	Area	0.0019793	0.0230311	–	–	7.1326E-06	8.2995E-05	277.5	1	0.4 x (1 - 0.435) x Tunnel Section E + 0.4 x Tunnel Section F
			I1-I4		0.01754422	0.1910741	0.00292404	0.03184568	–	–	–	1	1 x Tunnel Section I + 1 x Tunnel Section G + 1 x Tunnel Section H + 0.14 x Tunnel Section K + (1 - 0.612) x 0.38 x Tunnel SectionO + (1 - 0.4) x (1 - 0.435) x
			I5-I8	Volume			0.00146202	0.01592284	–	–	–		Tunnel Section E + (1 - 0.4) x Tunnel Section F + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+ Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel
45.868	0.612		JKO1	Area	0.00395432	0.0409844	–	–	2.5632E-06	2.6567E-05	1542.7	1	0.612 x Tunnel Section J + 0.612 x (1 - 0.14) x Tunnel Section K + 0.612 x Tunnel Section O
			L1-L5		0.0023357	0.0262366	0.00031143	0.0034982 2	–	–	–		1 x Tunnel Section L + (1 - 0.612) x 0.24 x Tunnel Section J + (1 - 0.612) x 0.62 x Tunnel Section O + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+
			L6-L10	Volume			0.00015571	0.00174911	–	–	–	1	Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P
			M1-M4		0.00114221	0.013319	0.00019037	0.00221983	–	–	–		
			M5-M8	Volume			9.5184E-05	0.00110991	–	–	–	1	0.5 x (Tunnel Section M + Tunnel Section N)
			N1-N4		0.00114221	0.013319	0.00019037	0.00221983	–	–	–		
			N5-N8	Volume			9.5184E-05	0.00110991	–	–	–	1	0.5 x (Tunnel Section M + Tunnel Section N)
			P1-P4		0.0023919	0.0249329	0.00039865	0.00415549	–	–	–		1 x Tunnel Section P + (1 - 0.612) x 0.76 x Tunnel Section J + (1 - 0.612) x 0.86 x Tunnel Section K + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+
			P5-P8	Volume			0.00019933	0.00207774	–	–	–	1	Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P
			W1-W8		0.08836937	2.1818415	0.00736411	0.18182012	–	–	–		
			W9-W16	Volume			0.00368206	0.09091006	–	–	–	1	1 x Tunnel W
			701-710		0.01132056	0.2257052	0.0007547	0.01504701	–	–	–	1	
			711-720	Volume			0.00037735	0.00752351	–	–	–	–	1 x Tunnel X
			BaseA	Volume	0.00094289	0.0086184	0.00094289	0.0086184					1/3 x Basement roads A,B,C
	% of Serving Rd		BaseC		0.00094289	0.0086184	0.00094289	0.0086184					1/3 x Basement roads A,B,C
		Out of 500m	801-820	Volume			–	–	–	–	–	1	1 x Tunnel Y
		Out of 500m	901-903				–	–	–	–	–		1 x Tunnel Z
		Out of 500m	904-906	Volume			–	–	–	–	–	1	
		Out of 500m	V1	Point								from 1-4	–

Appendix 3.18d - Emission Rates of Portal, Top Openings and Ventilation Exhaust (Hr14-15)

Remarks (Tunnel name - Portal & top opening of underpass in EIA of Rd Works in WK)	WKCD section no.	Road name	Bound	Road Type	Length (m)	Total (veh/hr)	PC	taxi	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	Total	Rate (g/km-veh) PM	Rate (g/km-veh) NOx	Emission Rate (g/s) PM	Emission Rate (g/s) NOx
							Hr 14-15 (2015 EIA_19-12-2011.xls)																				
A(i)	73	Lin Cheung Rd (underpass)	Northbound	3	290	290	53%	2%	22%	0%	3%	2%	5%	3%	2%	2%	2%	0%	2%	2%	0%	0%	100%	0.1108930	1.3257027	0.0006521	0.0077959
B(i)	73	Lin Cheung Rd (underpass)	Northbound	3	272	290	53%	2%	22%	0%	3%	2%	5%	3%	2%	2%	2%	0%	2%	2%	0%	0%	100%	0.1108930	1.3257027	0.0024298	0.0290476
C(i)	73	Lin Cheung Rd (underpass)	Northbound	3	110	290	53%	2%	22%	0%	3%	2%	5%	3%	2%	2%	2%	0%	2%	2%	0%	0%	100%	0.1108930	1.3257027	0.0009826	0.0117472
D(i)	73	Lin Cheung Rd (underpass)	Northbound	3	176	290	53%	2%	22%	0%	3%	2%	5%	3%	2%	2%	2%	0%	2%	2%	0%	0%	100%	0.1108930	1.3257027	0.0015722	0.0187955
E(i)	72	Lin Cheung Rd (underpass)	Southbound	3	155	630	55%	1%	23%	0%	2%	2%	6%	4%	2%	2%	1%	0%	2%	2%	0%	1%	100%	0.1097523	1.2790129	0.0029770	0.0346932
F(i)	72	Lin Cheung Rd (depressed)	Southbound	3	172	630	55%	1%	23%	0%	2%	2%	6%	4%	2%	2%	1%	0%	2%	2%	0%	1%	100%	0.1097523	1.2790129	0.0033035	0.0384983
G(i)	118	Lin Cheung Rd (depressed)	Southbound	3	121	690	54%	1%	22%	1%	3%	1%	5%	4%	2%	1%	1%	0%	2%	1%	0%	1%	100%	0.1105299	1.2991527	0.0025634	0.0301295
H(i)	119	Austin Rd W (depressed)	Eastbound	3	173	1090	31%	1%	51%	0%	1%	1%	5%	2%	1%	1%	0%	0%	0%	1%	1%	2%	100%	0.1582427	1.6918077	0.0082888	0.0886178
I(i)	117	Austin Rd W (depressed)	Eastbound	3	194	335	33%	1%	49%	0%	1%	1%	4%	3%	1%	0%	0%	0%	0%	1%	1%	1%	100%	0.1515504	1.6320511	0.0027359	0.0294631
J(i)	116	Austin Rd W (depressed)	Westbound	3	194	390	33%	1%	49%	0%	1%	1%	4%	3%	1%	0%	3%	0%	0%	1%	1%	1%	100%	0.1522437	1.6011564	0.0031997	0.0336510
K(i)	114	Lin Cheung Rd (depressed)	Southbound	3	95	95	63%	0%	32%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.1017280	0.9382234	0.0002550	0.0023521
L(i)	112	Lin Cheung Rd (depressed)	Northbound	3	95	365	52%	1%	22%	0%	3%	3%	5%	4%	3%	1%	1%	0%	1%	1%	0%	1%	100%	0.1116124	1.2940595	0.0010750	0.0124643
M(i)	84	Lin Cheung Rd	Southbound	3	56	570	54%	1%	23%	0%	3%	2%	5%	4%	2%	2%	1%	0%	2%	2%	0%	1%	100%	0.1106405	1.3065727	0.0009810	0.0115849
N(i)	77	Lin Cheung Rd	Northbound	3	56	550	53%	1%	23%	0%	3%	2%	5%	5%	2%	2%	1%	0%	2%	2%	0%	1%	100%	0.1124187	1.3362689	0.0009618	0.0114325
O(i)	111	Austin Rd W (depressed)	Eastbound	3	52	860	31%	1%	51%	0%	2%	2%	4%	2%	1%	1%	1%	0%	1%	2%	1%	2%	100%	0.1574999	1.6848836	0.0019565	0.0209300
P(i)	110	Austin Rd W (depressed)	Westbound	3	52	500	29%	1%	50%	0%	2%	2%	5%	2%	1%	1%	1%	0%	1%	1%	1%	2%	100%	0.1651335	1.8474785	0.0011926	0.0133429
W(i)	98	West Kowloon Highway (WKH)	Northbound	2	1970	3380	55%	0%	15%	0%	3%	2%	5%	4%	3%	2%	2%	0%	5%	2%	3%	0%	100%	0.0566192	1.4044621	0.1047235	2.5977088
	A	Internal Rd A	Bothbound	4	404	40	50%	0%	25%	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	0%	100%	0.1545602	1.4016274	0.0006938	0.0062917
	B	Internal Rd B	Bothbound	4	361	70	43%	0%	29%	0%	0%	0%	0%	7%	0%	0%	21%	0%	0%	0%	0%	0%	100%	0.1658985	1.4511260	0.0011645	0.0101861
	C	Internal Rd C	Bothbound	4	521	30	33%	0%	17%	0%	0%	0%	0%	0%	0%	0%	50%	0%	0%	0%	0%	0%	100%	0.2139628	2.1022108	0.0009290	0.0091271
X(i)	144	Reprovision of Gascoigne Rd Flyover	Westbound	3	180	1930	35%	1%	11%	1%	7%	4%	12%	11%	2%	1%	1%	0%	1%	10%	4%	1%	100%	0.1388927	2.7873581	0.0134032	0.2689801

Note: (i): Tunnel name is based on Portal & top opening of underpass in EIA of Road Works in West Kowloon.

Note: Emission rate is calculated by emission factor provided by Vehicular Emission Control Section of EPD provided the vehicle fleet average emission factors for pollutants mulitplied by traffic flow of each roads.

Scenario 4

max

					Calculated by the formula shown (extracted from the approved EIA of Road Works at West Kowloon)		Volume source - calculated by number of portal/opening involved		Area source - calculated by emission rate divided by area				
					Emission Rate - Portal/ Opening (g/s)		Emission Rate - Portal/ Opening (g/s) - Volume		Emission Rate - Portal/ Opening (g/m2-s) - Area source				
			Portal/ opening ID.	Source Type	PM	NOx	PM	NOx	PM	NOx	(Area)	Formula from Scenario	Emission calculation formula (Extracted from the approved EIA of Road Works at West Kowloon)
53.076	0.687		A	Area	0.00044811	0.0053571	–	–	9.1228E-07	1.0906E-05	491.2	1	0.687 x Tunnel Section A
80.935	0.873		B	Area	0.00229903	0.0274845	–	–	8.7243E-06	8.0387E-05	341.9	1	0.873 x ((1 - 0.687) x Tunnel Section A + 1 x Tunnel Section B)
32.646	0.435		CE	Area	0.00186928	0.0219565	–	–	2.9424E-06	3.4561E-05	635.3	1	0.435 x Tunnel Section C + 0.435 x (1 - 0.873) x (1 - 0.687) x Tunnel Section A + 0.435 x (1 - 0.873) x Tunnel Section B + 0.435 x Tunnel Section E
			D1-D7		0.00231617	0.0276894	0.00022059	0.00263708	–	–	–		
			D8-D14	Volume			0.00011029	0.00131854	–	–	–	1	(1 - 0.435) x Tunnel Section C + (1 - 0.435) x (1 - 0.873) x (1 - 0.687) x Tunnel Section A + (1 - 0.435) x (1 - 0.873) x Tunnel Section B + (1 - 0.435) x Tun
30	0.400		F	Area	0.00199389	0.0232361	–	–	7.1852E-06	8.3734E-05	277.5	1	0.4 x (1 - 0.435) x Tunnel Section E + 0.4 x Tunnel Section F
			I1-I4		0.01700419	0.187439	0.00283403	0.03123983	–	–	–	1	1 x Tunnel Section I + 1 x Tunnel Section G + 1 x Tunnel Section H + 0.14 x Tunnel Section K + (1 - 0.612) x 0.38 x Tunnel SectionO + (1 - 0.4) x (1 - 0.435) x
			I5-I8	Volume			0.00141702	0.01561991	–	–	–		Tunnel Section E + (1 - 0.4) x Tunnel Section F + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+ Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel
45.868	0.612		JKO1	Area	0.00385571	0.0398371	–	–	2.4993E-06	2.5823E-05	1542.7	1	0.612 x Tunnel Section J + 0.612 x (1 - 0.14) x Tunnel Section K + 0.612 x Tunnel Section O
			L1-L5		0.00195427	0.022157	0.00026057	0.00295427	–	–	–		1 x Tunnel Section L + (1 - 0.612) x 0.24 x Tunnel Section J + (1 - 0.612) x 0.62 x Tunnel Section O + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+
			L6-L10	Volume			0.00013028	0.00147714	–	–	–	1	Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P
			M1-M4		0.00097141	0.0115087	0.0001619	0.00191812	–	–	–		
			M5-M8	Volume			8.0951E-05	0.00095906	–	–	–	1	0.5 x (Tunnel Section M + Tunnel Section N)
			N1-N4		0.00097141	0.0115087	0.0001619	0.00191812	–	–	–		
			N5-N8	Volume			8.0951E-05	0.00095906	–	–	–	1	0.5 x (Tunnel Section M + Tunnel Section N)
			P1-P4		0.00237274	0.0249067	0.00039546	0.00415111	–	–	–		1 x Tunnel Section P + (1 - 0.612) x 0.76 x Tunnel Section J + (1 - 0.612) x 0.86 x Tunnel Section K + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+
			P5-P8	Volume			0.00019773	0.00207556	–	–	–	1	Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P
			W1-W8		0.10472346	2.5977088	0.00872696	0.21647573	–	–	–		
			W9-W16	Volume			0.00436348	0.10823787	–	–	–	1	1 x Tunnel W
			701-710		0.01340324	0.2689801	0.00089355	0.017932	–	–	–	1	
			711-720	Volume			0.00044677	0.008966	–	–	–	–	1 x Tunnel X
			BaseA	Volume	0.00092909	0.008535	0.00092909	0.00853498					1/3 x Basement roads A,B,C
	% of Serving Rd		BaseC		0.00092909	0.008535	0.00092909	0.00853498					1/3 x Basement roads A,B,C
		Out of 500m	801-820	Volume			–	–	–	–	–	1	1 x Tunnel Y
		Out of 500m	901-903				–	–	–	–	–		1 x Tunnel Z
		Out of 500m	904-906	Volume			–	–	–	–	–	1	
		Out of 500m	V1	Point								from 1-4	–

Appendix 3.18d - Emission Rates of Portal, Top Openings and Ventilation Exhaust (Hr15-16)

Remarks (Tunnel name - Portal & top opening of underpass in EIA of Rd Works in WK)	WKCD section no.	Road name	Bound	Road Type	Length (m)	Total (veh/hr)	PC	taxi	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	Total	Rate (g/km-veh) PM	Rate (g/km-veh) NOx	Emission Rate (g/s) PM	Emission Rate (g/s) NOx
							Hr 15-16 (2015 EIA_19-12-2011.xls)																				
A(i)	73	Lin Cheung Rd (underpass)	Northbound	3	273	370	54%	1%	22%	0%	3%	3%	5%	4%	1%	1%	1%	0%	3%	1%	0%	0%	100%	0.1108224	1.3421993	0.0008315	0.0100702
B(i)	73	Lin Cheung Rd (underpass)	Northbound	3	272	370	54%	1%	22%	0%	3%	3%	5%	4%	1%	1%	1%	0%	3%	1%	0%	0%	100%	0.1108224	1.3421993	0.0030981	0.0375219
C(i)	73	Lin Cheung Rd (underpass)	Northbound	3	110	370	54%	1%	22%	0%	3%	3%	5%	4%	1%	1%	1%	0%	3%	1%	0%	0%	100%	0.1108224	1.3421993	0.0012529	0.0151743
D(i)	73	Lin Cheung Rd (underpass)	Northbound	3	176	370	54%	1%	22%	0%	3%	3%	5%	4%	1%	1%	1%	0%	3%	1%	0%	0%	100%	0.1108224	1.3421993	0.0020047	0.0242789
E(i)	72	Lin Cheung Rd (underpass)	Southbound	3	155	640	55%	1%	22%	1%	3%	2%	5%	5%	2%	2%	1%	0%	2%	2%	0%	1%	100%	0.1004353	1.1996396	0.0027675	0.0330567
F(i)	72	Lin Cheung Rd (depressed)	Southbound	3	172	640	55%	1%	22%	1%	3%	2%	5%	5%	2%	2%	1%	0%	2%	2%	0%	1%	100%	0.1004353	1.1996396	0.0030711	0.0366823
G(i)	118	Lin Cheung Rd (depressed)	Southbound	3	121	675	54%	1%	22%	1%	3%	1%	5%	4%	2%	1%	1%	0%	1%	1%	0%	1%	100%	0.1021868	1.2116609	0.0023184	0.0274896
H(i)	119	Austin Rd W (depressed)	Eastbound	3	173	1280	33%	1%	49%	0%	2%	2%	4%	3%	1%	1%	0%	0%	0%	2%	1%	2%	100%	0.1458971	1.5789733	0.0089743	0.0971244
I(i)	117	Austin Rd W (depressed)	Eastbound	3	194	400	35%	1%	48%	0%	1%	1%	5%	3%	1%	1%	0%	0%	0%	1%	1%	1%	100%	0.1419147	1.5273814	0.0030591	0.0329236
J(i)	116	Austin Rd W (depressed)	Westbound	3	194	500	35%	1%	45%	0%	2%	2%	4%	2%	1%	1%	3%	0%	0%	2%	1%	1%	100%	0.1417755	1.5644763	0.0038201	0.0421539
K(i)	114	Lin Cheung Rd (depressed)	Southbound	3	95	95	63%	0%	32%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.0970331	0.9105323	0.0002433	0.0022827
L(i)	112	Lin Cheung Rd (depressed)	Northbound	3	95	420	55%	1%	23%	0%	2%	2%	5%	4%	2%	1%	1%	0%	1%	1%	0%	1%	100%	0.1006229	1.1568494	0.0011152	0.0128217
M(i)	84	Lin Cheung Rd	Southbound	3	56	560	54%	1%	23%	0%	3%	2%	4%	4%	2%	2%	1%	0%	2%	2%	0%	1%	100%	0.1030646	1.2325114	0.0008978	0.0107365
N(i)	77	Lin Cheung Rd	Northbound	3	56	665	54%	1%	23%	0%	3%	2%	5%	5%	2%	2%	1%	0%	2%	2%	0%	1%	100%	0.1049602	1.2438549	0.0010858	0.0128670
O(i)	111	Austin Rd W (depressed)	Eastbound	3	52	990	33%	2%	49%	0%	2%	2%	5%	3%	1%	1%	1%	0%	1%	2%	1%	2%	100%	0.1474459	1.5816576	0.0021085	0.0226177
P(i)	110	Austin Rd W (depressed)	Westbound	3	52	590	33%	1%	47%	0%	2%	2%	4%	3%	1%	1%	1%	0%	1%	2%	2%	2%	100%	0.1468227	1.6763221	0.0012513	0.0142860
W(ii)	98	West Kowloon Highway (WKH)	Northbound	2	1970	3445	55%	0%	14%	0%	3%	2%	5%	4%	3%	2%	2%	0%	4%	2%	3%	0%	100%	0.0555149	1.3914694	0.1046557	2.6231710
	A	Internal Rd A	Bothbound	4	404	50	50%	0%	30%	0%	0%	0%	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	100%	0.1547026	1.3396760	0.0008681	0.0075171
	B	Internal Rd B	Bothbound	4	361	90	39%	0%	28%	0%	6%	0%	0%	6%	0%	0%	22%	0%	0%	0%	0%	0%	100%	0.1760864	1.6307366	0.0015892	0.0147174
	C	Internal Rd C	Bothbound	4	521	45	33%	0%	22%	0%	0%	0%	0%	0%	0%	0%	44%	0%	0%	0%	0%	0%	100%	0.2116818	2.0191565	0.0013786	0.0131498
X(i)	144	Reprovision of Gascoigne Rd Flyover	Westbound	3	180	1900	35%	0%	11%	1%	7%	4%	11%	11%	1%	1%	1%	0%	1%	10%	4%	1%	100%	0.1297838	2.6714914	0.0123295	0.2537917

Note: (i): Tunnel name is based on Portal & top opening of underpass in EIA of Road Works in West Kowloon.

Note: Emission rate is calculated by emission factor provided by Vehicular Emission Control Section of EPD provided the vehicle fleet average emission factors for pollutants mulitplied by traffic flow of each roads.

Scenario 4

max

				Calculated by the formula shown (extracted from the approved EIA of Road Works at West Kowloon)		Volume source - calculated by number of portal/opening involved		Area source - calculated by emission rate divided by area				
				Emission Rate - Portal/ Opening (g/s)		Emission Rate - Portal/ Opening (g/s) - Volume		Emission Rate - Portal/ Opening (g/m2-s) - Area source				
			Portal/ opening ID.	Source Type	PM	NOx	PM	NOx	PM	NOx	(Area)	Formula from Scenario	Emission calculation formula (Extracted from the approved EIA of Road Works at West Kowloon)
53.076	0.687		A	Area	0.00057137	0.00692	--	--	1.1632E-06	1.4088E-05	491.2	1	0.687 x Tunnel Section A
80.935	0.873		B	Area	0.00293138	0.0355027	--	--	8.5738E-06	0.00010384	341.9	1	0.873 x ((1 - 0.687) x Tunnel Section A + 1 x Tunnel Section B)
32.646	0.435		CE	Area	0.00193582	0.0232442	--	--	3.0471E-06	3.6588E-05	635.3	1	0.435 x Tunnel Section C + 0.435 x (1 - 0.873) x (1 - 0.687) x Tunnel Section A + 0.435 x (1 - 0.873) x Tunnel Section B + 0.435 x Tunnel Section E
			D1-D7		0.00295324	0.0357674	0.00028126	0.00340642	--	--	--		
			D8-D14	Volume			0.00014063	0.00170321	--	--	--	1	(1 - 0.435) x Tunnel Section C + (1 - 0.435) x (1 - 0.873) x (1 - 0.687) x Tunnel Section A + (1 - 0.435) x (1 - 0.873) x Tunnel Section B + (1 - 0.435) x Tun
30	0.400		F	Area	0.00185359	0.02214	--	--	6.6796E-06	7.9784E-05	277.5	1	0.4 x (1 - 0.435) x Tunnel Section E + 0.4 x Tunnel Section F
			I1-I4		0.01761826	0.1957112	0.00293638	0.03261853	--	--	--	1	1 x Tunnel Section I + 1 x Tunnel Section G + 1 x Tunnel Section H + 0.14 x Tunnel Section K + (1 - 0.612) x 0.38 x Tunnel SectionO + (1 - 0.4) x (1 - 0.435) x
			I5-I8	Volume			0.00146819	0.01630927	--	--	--		Tunnel Section E + (1 - 0.4) x Tunnel Section F + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+ Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel
45.868	0.612		JKO1	Area	0.00453564	0.0480265	--	--	2.9401E-06	3.1131E-05	1542.7	1	0.612 x Tunnel Section J + 0.612 x (1 - 0.14) x Tunnel Section K + 0.612 x Tunnel Section O
			L1-L5		0.00212706	0.0242412	0.00028361	0.00323216	--	--	--		1 x Tunnel Section L + (1 - 0.612) x 0.24 x Tunnel Section J + (1 - 0.612) x 0.62 x Tunnel Section O + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+
			L6-L10	Volume			0.0001418	0.00161608	--	--	--	1	Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P
			M1-M4		0.00099178	0.0118018	0.0001653	0.00196696	--	--	--		
			M5-M8	Volume			8.2648E-05	0.00098348	--	--	--	1	0.5 x (Tunnel Section M + Tunnel Section N)
			N1-N4		0.00099178	0.0118018	0.0001653	0.00196696	--	--	--		
			N5-N8	Volume			8.2648E-05	0.00098348	--	--	--	1	0.5 x (Tunnel Section M + Tunnel Section N)
			P1-P4		0.00266803	0.0287255	0.00044467	0.00478758	--	--	--		1 x Tunnel Section P + (1 - 0.612) x 0.76 x Tunnel Section J + (1 - 0.612) x 0.86 x Tunnel Section K + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+
			P5-P8	Volume			0.00022234	0.00239379	--	--	--	1	Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P
			W1-W8		0.10465568	2.623171	0.00872131	0.21859758	--	--	--		
			W9-W16	Volume			0.00436065	0.10929879	--	--	--	1	1 x Tunnel W
			701-710		0.01232946	0.2537917	0.00082196	0.01691945	--	--	--	1	
			711-720	Volume			0.00041098	0.00845972	--	--	--	--	1 x Tunnel X
			BaseA	Volume	0.0012786	0.0117947	0.0012786	0.01179474					1/3 x Basement roads A,B,C
	% of Serving Rd		BaseC		0.0012786	0.0117947	0.0012786	0.01179474					1/3 x Basement roads A,B,C
		Out of 500m	801-820	Volume			--	--	--	--	--	1	1 x Tunnel Y
		Out of 500m	901-903				--	--	--	--	--		1 x Tunnel Z
		Out of 500m	904-906	Volume			--	--	--	--	--	1	
		Out of 500m	V1	Point								from 1-4	--

Appendix 3.18d - Emission Rates of Portal, Top Openings and Ventilation Exhaust (Hr16-17)

Remarks (Tunnel name - Portal & top opening of underpass in EIA of Rd Works in WK)	WKCD section no.	Road name	Bound	Road Type	Length (m)	Total (veh/hr)	Hr 16-17 (2015 EIA_19-12-2011.xls) PC	taxi	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	Total	Rate (g/km-) PM	NOx	Emission Rate (g/s) PM	NOx
A(i)	73	Lin Cheung Rd (underpass)	Northbound	3	273	450	54%	1%	21%	0%	3%	2%	4%	4%	1%	1%	1%	0%	2%	2%	0%	1%	100%	0.1021659	1.2906422	0.0009323	0.0117771
B(i)	73	Lin Cheung Rd (underpass)	Northbound	3	272	450	54%	1%	21%	0%	3%	2%	4%	4%	1%	1%	1%	0%	2%	2%	0%	1%	100%	0.1021659	1.2906422	0.0034736	0.0438818
C(i)	73	Lin Cheung Rd (underpass)	Northbound	3	110	450	54%	1%	21%	0%	3%	2%	4%	4%	1%	1%	1%	0%	2%	2%	0%	1%	100%	0.1021659	1.2906422	0.0014048	0.0177463
D(i)	73	Lin Cheung Rd (underpass)	Northbound	3	176	450	54%	1%	21%	0%	3%	2%	4%	4%	1%	1%	1%	0%	2%	2%	0%	1%	100%	0.1021659	1.2906422	0.0022476	0.0283941
E(i)	72	Lin Cheung Rd (underpass)	Southbound	3	155	640	55%	1%	22%	1%	3%	2%	5%	5%	2%	1%	1%	0%	2%	2%	0%	1%	100%	0.0994555	1.1909776	0.0027406	0.0328180
F(i)	72	Lin Cheung Rd (depressed)	Southbound	3	172	640	55%	1%	22%	1%	3%	2%	5%	5%	2%	1%	1%	0%	2%	2%	0%	1%	100%	0.0994555	1.1909776	0.0030411	0.0364174
G(i)	118	Lin Cheung Rd (depressed)	Southbound	3	121	655	55%	1%	22%	1%	3%	2%	5%	5%	2%	1%	1%	0%	2%	2%	0%	1%	100%	0.1023337	1.2244056	0.0022529	0.0269556
H(i)	119	Austin Rd W (depressed)	Eastbound	3	173	1255	35%	1%	47%	0%	2%	2%	4%	3%	1%	1%	0%	0%	0%	2%	1%	2%	100%	0.1410136	1.5105051	0.0085045	0.0910981
I(i)	117	Austin Rd W (depressed)	Eastbound	3	194	400	38%	1%	46%	0%	1%	1%	5%	3%	1%	1%	0%	0%	0%	1%	0%	1%	100%	0.1378342	1.3635899	0.0029711	0.0293929
J(i)	116	Austin Rd W (depressed)	Westbound	3	194	520	36%	1%	43%	0%	2%	2%	5%	3%	1%	1%	3%	0%	0%	2%	1%	1%	100%	0.1416634	1.5803407	0.0039697	0.0442847
K(i)	114	Lin Cheung Rd (depressed)	Southbound	3	95	75	67%	0%	33%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.0772351	0.6202375	0.0001529	0.0012276
L(i)	112	Lin Cheung Rd (depressed)	Northbound	3	95	480	55%	1%	22%	0%	3%	2%	5%	4%	2%	1%	1%	0%	1%	1%	0%	1%	100%	0.1000858	1.1605299	0.0012678	0.0147000
M(i)	84	Lin Cheung Rd	Southbound	3	56	540	55%	1%	23%	0%	3%	2%	5%	5%	1%	1%	1%	0%	2%	2%	0%	1%	100%	0.1033641	1.2487185	0.0008683	0.0104892
N(i)	77	Lin Cheung Rd	Northbound	3	56	770	55%	1%	22%	1%	3%	2%	5%	5%	1%	1%	1%	0%	1%	1%	0%	1%	100%	0.1017174	1.2006051	0.0012183	0.0143806
O(i)	111	Austin Rd W (depressed)	Eastbound	3	52	955	36%	1%	46%	0%	2%	2%	4%	3%	1%	1%	1%	0%	1%	2%	1%	2%	100%	0.1396371	1.5234272	0.0019262	0.0210148
P(i)	110	Austin Rd W (depressed)	Westbound	3	52	575	36%	1%	46%	0%	2%	2%	4%	3%	1%	1%	1%	0%	1%	2%	1%	1%	100%	0.1435693	1.5721295	0.0011924	0.0130574
W(ii)	98	West Kowloon Highway (WKH)	Northbound	2	1970	3510	56%	0%	14%	0%	3%	2%	5%	4%	2%	2%	1%	0%	4%	2%	3%	0%	100%	0.0543383	1.3756115	0.1043703	2.6422058
	A	Internal Rd A	Bothbound	4	404	50	50%	0%	30%	0%	0%	0%	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	100%	0.1521985	1.3253152	0.0008540	0.0074365
	B	Internal Rd B	Bothbound	4	361	85	41%	0%	29%	0%	0%	0%	0%	6%	0%	0%	24%	0%	0%	0%	0%	0%	100%	0.1726185	1.5172152	0.0014713	0.0129322
	C	Internal Rd C	Bothbound	4	521	45	33%	0%	22%	0%	0%	0%	0%	0%	0%	0%	44%	0%	0%	0%	0%	0%	100%	0.2061317	1.9849207	0.0013424	0.0129268
X(i)	144	Reprovision of Gascoigne Rd Flyover	Westbound	3	180	1885	36%	0%	11%	1%	7%	4%	11%	11%	1%	1%	1%	0%	1%	10%	4%	1%	100%	0.1271305	2.6322257	0.0119821	0.2480873

Note: (i): Tunnel name is based on Portal & top opening of underpass in EIA of Road Works in West Kowloon.

Note: Emission rate is calculated by emission factor provided by Vehicular Emission Control Section of EPD provided the vehicle fleet average emission factors for pollutants mulitplied by traffic flow of each roads.

Scenario 4

max

						Calculated by the formula shown (extracted from the approved EIA of Road Works at West Kowloon) Emission Rate - Portal/ Opening (g/s)		Volume source - calculated by number of portal/opening involved Emission Rate - Portal/ Opening (g/s) - Volume		Area source - calculated by emission rate divided by area Emission Rate - Portal/ Opening (g/m2-s) - Area source				
			Portal/ opening ID.	Source Type	PM	NOx	PM	NOx	PM	NOx	(Area)	Formula from Scenario	Emission calculation formula (Extracted from the approved EIA of Road Works at West Kowloon)
53.076	0.687		A	Area	0.00064063	0.0080929	–	–	1.3042E-06	1.6476E-05	491.2	1	0.687 x Tunnel Section A
80.935	0.873		B	Area	0.00328671	0.0415204	–	–	9.6131E-06	0.00012144	341.9	1	0.873 x ((1 - 0.687) x Tunnel Section A + 1 x Tunnel Section B)
32.646	0.435		CE	Area	0.00201269	0.0246412	–	–	3.1681E-06	3.8787E-05	635.3	1	0.435 x Tunnel Section C + 0.435 x (1 - 0.873) x (1 - 0.687) x Tunnel Section A + 0.435 x (1 - 0.873) x Tunnel Section B + 0.435 x Tunnel Section E
			D1-D7		0.00331121	0.0418299	0.00031535	0.0039838	–	–	–		
			D8-D14	Volume			0.00015768	0.0019919	–	–	–	1	(1 - 0.435) x Tunnel Section C + (1 - 0.435) x (1 - 0.873) x (1 - 0.687) x Tunnel Section A + (1 - 0.435) x (1 - 0.873) x Tunnel Section B + (1 - 0.435) x Tun
30	0.400		F	Area	0.00183551	0.0219802	–	–	6.6144E-06	7.9208E-05	277.5	1	0.4 x (1 - 0.435) x Tunnel Section E + 0.4 x Tunnel Section F
			I1-I4		0.01691802	0.1849501	0.00281967	0.03082502	–	–	–	1	1 x Tunnel Section I + 1 x Tunnel Section G + 1 x Tunnel Section H + 0.14 x Tunnel Section K + (1 - 0.612) x 0.38 x Tunnel SectionO + (1 - 0.4) x (1 - 0.435) x
			I5-I8	Volume			0.00140983	0.01541251	–	–	–		Tunnel Section E + (1 - 0.4) x Tunnel Section F + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+ Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel
45.868	0.612		JKO1	Area	0.0044339	0.0473686	–	–	2.8741E-06	3.0705E-05	1542.7	1	0.612 x Tunnel Section J + 0.612 x (1 - 0.14) x Tunnel Section K + 0.612 x Tunnel Section O
			L1-L5		0.00225836	0.0257434	0.00030112	0.00343245	–	–	–		1 x Tunnel Section L + (1 - 0.612) x 0.24 x Tunnel Section J + (1 - 0.612) x 0.62 x Tunnel Section O + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+
			L6-L10	Volume			0.00015056	0.00171623	–	–	–	1	Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P
			M1-M4		0.0010433	0.0124349	0.00017388	0.00207248	–	–	–		
			M5-M8	Volume			8.6942E-05	0.00103624	–	–	–	1	0.5 x (Tunnel Section M + Tunnel Section N)
			N1-N4		0.0010433	0.0124349	0.00017388	0.00207248	–	–	–		
			N5-N8	Volume			8.6942E-05	0.00103624	–	–	–	1	0.5 x (Tunnel Section M + Tunnel Section N)
			P1-P4		0.00260303	0.0277379	0.00043384	0.00462298	–	–	–		1 x Tunnel Section P + (1 - 0.612) x 0.76 x Tunnel Section J + (1 - 0.612) x 0.86 x Tunnel Section K + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+
			P5-P8	Volume			0.00021692	0.00231149	–	–	–	1	Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P
			W1-W8		0.10437029	2.6422058	0.00869752	0.22018382	–	–	–		
			W9-W16	Volume			0.00434876	0.11009191	–	–	–	1	1 x Tunnel W
			701-710		0.01198205	0.2480873	0.0007988	0.01653915	–	–	–	1	
			711-720	Volume			0.0003994	0.00826958	–	–	–	–	1 x Tunnel X
			BaseA	Volume	0.00122259	0.0110985	0.00122259	0.01109848					1/3 x Basement roads A,B,C
	% of Serving Rd		BaseC		0.00122259	0.0110985	0.00122259	0.01109848					1/3 x Basement roads A,B,C
		Out of 500m	801-820	Volume			–	–	–	–	–	1	1 x Tunnel Y
		Out of 500m	901-903				–	–	–	–	–		1 x Tunnel Z
		Out of 500m	904-906	Volume			–	–	–	–	–	1	
		Out of 500m	V1	Point								from 1-4	–

Appendix 3.18d - Emission Rates of Portal, Top Openings and Ventilation Exhaust (Hr17-18)

Remarks (Tunnel name - Portal & top opening of underpass in EIA of Rd Works in WK)	WKCD section no.	Road name	Bound	Road Type	Length (m)	Total (veh/hr)	Hr 17-18 (2015 EIA_19-12-2011.xls) PC	taxi	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	Total	Rate (g/km-) PM	NOx	Emission Rate (g/s) PM	NOx
A(i)	73	Lin Cheung Rd (underpass)	Northbound	3	540	540	55%	1%	21%	0%	4%	2%	5%	6%	1%	1%	1%	0%	2%	2%	0%	1%	100%	0.1014318	1.2563505	0.0011107	0.0137570
B(i)	73	Lin Cheung Rd (underpass)	Northbound	3	272	540	55%	1%	21%	0%	4%	2%	5%	6%	1%	1%	1%	0%	2%	2%	0%	1%	100%	0.1014318	1.2563505	0.0041384	0.0512591
C(i)	73	Lin Cheung Rd (underpass)	Northbound	3	110	540	55%	1%	21%	0%	4%	2%	5%	6%	1%	1%	1%	0%	2%	2%	0%	1%	100%	0.1014318	1.2563505	0.0016736	0.0207298
D(i)	73	Lin Cheung Rd (underpass)	Northbound	3	176	540	55%	1%	21%	0%	4%	2%	5%	6%	1%	1%	1%	0%	2%	2%	0%	1%	100%	0.1014318	1.2563505	0.0026778	0.0331677
E(i)	72	Lin Cheung Rd (underpass)	Southbound	3	155	660	55%	1%	22%	1%	3%	2%	5%	5%	2%	1%	1%	0%	2%	2%	0%	2%	100%	0.0980087	1.1726445	0.0027851	0.0333226
F(i)	72	Lin Cheung Rd (depressed)	Southbound	3	172	660	55%	1%	22%	1%	3%	2%	5%	5%	2%	1%	1%	0%	2%	2%	0%	2%	100%	0.0980087	1.1726445	0.0030905	0.0369774
G(i)	118	Lin Cheung Rd (depressed)	Southbound	3	121	650	55%	1%	22%	1%	3%	2%	5%	5%	2%	1%	1%	0%	2%	2%	0%	2%	100%	0.0977730	1.1767631	0.0021361	0.0257090
H(i)	119	Austin Rd W (depressed)	Eastbound	3	173	1215	38%	1%	45%	0%	2%	2%	5%	3%	1%	1%	0%	0%	0%	2%	1%	1%	100%	0.1359502	1.4655880	0.0079378	0.0855720
I(i)	117	Austin Rd W (depressed)	Eastbound	3	194	395	39%	1%	44%	0%	1%	1%	5%	3%	1%	1%	0%	0%	0%	1%	0%	1%	100%	0.1335938	1.3374192	0.0028437	0.0284685
J(i)	116	Austin Rd W (depressed)	Westbound	3	194	540	37%	1%	43%	0%	2%	2%	5%	3%	1%	1%	3%	0%	0%	2%	1%	1%	100%	0.1382649	1.5407643	0.0040235	0.0448362
K(i)	114	Lin Cheung Rd (depressed)	Southbound	3	95	85	65%	0%	35%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.0813252	0.6538889	0.0001824	0.0014667
L(i)	112	Lin Cheung Rd (depressed)	Northbound	3	95	510	57%	1%	22%	0%	3%	2%	5%	5%	1%	1%	1%	0%	1%	1%	0%	1%	100%	0.0973764	1.1253061	0.0013105	0.0151447
M(i)	84	Lin Cheung Rd	Southbound	3	56	525	55%	1%	22%	0%	3%	2%	5%	5%	1%	1%	1%	0%	2%	2%	0%	1%	100%	0.1017097	1.2512942	0.0008306	0.0102189
N(i)	77	Lin Cheung Rd	Northbound	3	56	860	55%	1%	22%	1%	3%	2%	5%	5%	1%	1%	1%	0%	1%	1%	0%	1%	100%	0.0999051	1.1785577	0.0013365	0.0157665
O(i)	111	Austin Rd W (depressed)	Eastbound	3	52	825	39%	1%	44%	0%	2%	2%	4%	3%	1%	1%	1%	0%	1%	2%	1%	1%	100%	0.1348947	1.4432168	0.0018023	0.0192830
P(i)	110	Austin Rd W (depressed)	Westbound	3	52	575	39%	1%	43%	0%	2%	2%	4%	3%	1%	1%	1%	0%	1%	2%	1%	1%	100%	0.1355976	1.5135493	0.0011262	0.0125709
W(ii)	98	West Kowloon Highway (WKH)	Northbound	2	1970	4165	57%	0%	13%	0%	3%	2%	5%	4%	2%	2%	1%	0%	4%	2%	3%	0%	100%	0.0531229	1.3581898	0.1210767	3.0955598
	A	Internal Rd A	Bothbound	4	404	65	46%	0%	31%	0%	0%	0%	0%	0%	0%	0%	23%	0%	0%	0%	0%	0%	100%	0.1638192	1.4453496	0.0011950	0.0105430
	B	Internal Rd B	Bothbound	4	361	105	43%	0%	29%	0%	0%	0%	0%	5%	0%	0%	24%	0%	0%	0%	0%	0%	100%	0.1686630	1.4954378	0.0017759	0.0157457
	C	Internal Rd C	Bothbound	4	521	55	36%	0%	18%	0%	0%	0%	0%	0%	0%	0%	45%	0%	0%	0%	0%	0%	100%	0.1979458	1.9406644	0.0015756	0.0154471
X(i)	144	Reprovision of Gascoigne Rd Flyover	Westbound	3	180	1865	36%	0%	11%	1%	8%	4%	10%	12%	1%	1%	1%	0%	1%	10%	4%	0%	100%	0.1245703	2.6362905	0.0116162	0.2458341

Note: (i): Tunnel name is based on Portal & top opening of underpass in EIA of Road Works in West Kowloon.

Note: Emission rate is calculated by emission factor provided by Vehicular Emission Control Section of EPD provided the vehicle fleet average emission factors for pollutants mulitplied by traffic flow of each roads.

Scenario 4

max

						Calculated by the formula shown (extracted from the approved EIA of Road Works at West Kowloon) Emission Rate - Portal/ Opening (g/s)		Volume source - calculated by number of portal/opening involved Emission Rate - Portal/ Opening (g/s) - Volume		Area source - calculated by emission rate divided by area Emission Rate - Portal/ Opening (g/m2-s) - Area source				
			Portal/ opening ID.	Source Type	PM	NOx	PM	NOx	PM	NOx	(Area)	Formula from Scenario	Emission calculation formula (Extracted from the approved EIA of Road Works at West Kowloon)
53.076	0.687		A	Area	0.00076323	0.0094535	–	–	1.5538E-06	1.9246E-05	491.2	1	0.687 x Tunnel Section A
80.935	0.873		B	Area	0.00391571	0.0485007	–	–	1.1453E-05	0.00014186	341.9	1	0.873 x ((1 - 0.687) x Tunnel Section A + 1 x Tunnel Section B)
32.646	0.435		CE	Area	0.00218896	0.0266019	–	–	3.4456E-06	4.1873E-05	635.3	1	0.435 x Tunnel Section C + 0.435 x (1 - 0.873) x (1 - 0.687) x Tunnel Section A + 0.435 x (1 - 0.873) x Tunnel Section B + 0.435 x Tunnel Section E
			D1-D7		0.00394491	0.0488622	0.00037571	0.00465355	–	–	–		
			D8-D14	Volume			0.00018785	0.00232677	–	–	–	1	(1 - 0.435) x Tunnel Section C + (1 - 0.435) x (1 - 0.873) x (1 - 0.687) x Tunnel Section A + (1 - 0.435) x (1 - 0.873) x Tunnel Section B + (1 - 0.435) x Tun
30	0.400		F	Area	0.00186533	0.0223181	–	–	6.7219E-06	8.0426E-05	277.5	1	0.4 x (1 - 0.435) x Tunnel Section E + 0.4 x Tunnel Section F
			I1-I4		0.01616423	0.1778462	0.00269404	0.02964104	–	–	–	1	1 x Tunnel Section I + 1 x Tunnel Section G + 1 x Tunnel Section H + 0.14 x Tunnel Section K + (1 - 0.612) x 0.38 x Tunnel SectionO + (1 - 0.4) x (1 - 0.435) x
			I5-I8	Volume			0.00134702	0.01482052	–	–	–		Tunnel Section E + (1 - 0.4) x Tunnel Section F + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+ Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel
45.868	0.612		JKO1	Area	0.00458571	0.0484932	–	–	2.9725E-06	3.1434E-05	1542.7	1	0.612 x Tunnel Section J + 0.612 x (1 - 0.14) x Tunnel Section K + 0.612 x Tunnel Section O
			L1-L5		0.0023225	0.0262405	0.00030967	0.00349873	–	–	–		1 x Tunnel Section L + (1 - 0.612) x 0.24 x Tunnel Section J + (1 - 0.612) x 0.62 x Tunnel Section O + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+
			L6-L10	Volume			0.00015483	0.00174936	–	–	–	1	Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P
			M1-M4		0.00108357	0.0129927	0.00018059	0.00216545	–	–	–		
			M5-M8	Volume			9.0297E-05	0.00108272	–	–	–	1	0.5 x (Tunnel Section M + Tunnel Section N)
			N1-N4		0.00108357	0.0129927	0.00018059	0.00216545	–	–	–		
			N5-N8	Volume			9.0297E-05	0.00108272	–	–	–	1	0.5 x (Tunnel Section M + Tunnel Section N)
			P1-P4		0.00260361	0.0278603	0.00043393	0.00464338	–	–	–		1 x Tunnel Section P + (1 - 0.612) x 0.76 x Tunnel Section J + (1 - 0.612) x 0.86 x Tunnel Section K + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+
			P5-P8	Volume			0.00021697	0.00232169	–	–	–	1	Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P
			W1-W8		0.12107666	3.0955598	0.01008972	0.25796331	–	–	–		
			W9-W16	Volume			0.00504486	0.12898166	–	–	–	1	1 x Tunnel W
			701-710		0.01161618	0.2458341	0.00077441	0.01638894	–	–	–	1	
			711-720	Volume			0.00038721	0.00819447	–	–	–	–	1 x Tunnel X
			BaseA	Volume	0.00151548	0.013912	0.00151548	0.01391196					1/3 x Basement roads A,B,C
	% of Serving Rd		BaseC		0.00151548	0.013912	0.00151548	0.01391196					1/3 x Basement roads A,B,C
		Out of 500m	801-820	Volume			–	–	–	–	–	1	1 x Tunnel Y
		Out of 500m	901-903				–	–	–	–	–		1 x Tunnel Z
		Out of 500m	904-906	Volume			–	–	–	–	–	1	
		Out of 500m	V1	Point								from 1-4	–

Appendix 3.18d - Emission Rates of Portal, Top Openings and Ventilation Exhaust (Hr18-19)

Remarks (Tunnel name - Portal & top opening of underpass in EIA of Rd Works in WK)	WKCD section no.	Road name	Bound	Road Type	Length (m)	Total (veh/hr)	PC	taxi	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	Total	Rate (g/km-veh) PM	Rate (g/km-veh) NOx	Emission Rate (g/s) PM	Emission Rate (g/s) NOx
							Hr 18-19 (2015 EIA_19-12-2011.xls)																				
A(i)	73	Lin Cheung Rd (underpass)	Northbound	3	550	550	55%	1%	21%	0%	4%	2%	5%	5%	1%	1%	1%	0%	2%	2%	0%	1%	100%	0.0963072	1.2124485	0.0010741	0.0135222
B(i)	73	Lin Cheung Rd (underpass)	Northbound	3	272	550	55%	1%	21%	0%	4%	2%	5%	5%	1%	1%	1%	0%	2%	2%	0%	1%	100%	0.0963072	1.2124485	0.0040021	0.0503840
C(i)	73	Lin Cheung Rd (underpass)	Northbound	3	110	550	55%	1%	21%	0%	4%	2%	5%	5%	1%	1%	1%	0%	2%	2%	0%	1%	100%	0.0963072	1.2124485	0.0016185	0.0203759
D(i)	73	Lin Cheung Rd (underpass)	Northbound	3	176	550	55%	1%	21%	0%	4%	2%	5%	5%	1%	1%	1%	0%	2%	2%	0%	1%	100%	0.0963072	1.2124485	0.0025896	0.0326014
E(i)	72	Lin Cheung Rd (underpass)	Southbound	3	155	828	56%	1%	22%	1%	3%	1%	4%	5%	1%	1%	1%	0%	1%	1%	0%	1%	100%	0.0924923	1.0975200	0.0032957	0.0391072
F(i)	72	Lin Cheung Rd (depressed)	Southbound	3	172	828	56%	1%	22%	1%	3%	1%	4%	5%	1%	1%	1%	0%	1%	1%	0%	1%	100%	0.0924923	1.0975200	0.0036572	0.0433963
G(i)	118	Lin Cheung Rd (depressed)	Southbound	3	121	755	56%	1%	21%	1%	3%	1%	5%	5%	1%	1%	1%	0%	1%	1%	0%	1%	100%	0.0928644	1.1226330	0.0023566	0.0284884
H(i)	119	Austin Rd W (depressed)	Eastbound	3	173	1226	41%	1%	42%	0%	2%	2%	5%	3%	1%	1%	0%	0%	0%	2%	0%	1%	100%	0.1262322	1.3521806	0.0074382	0.0796772
I(i)	117	Austin Rd W (depressed)	Eastbound	3	194	436	42%	1%	42%	0%	1%	1%	5%	3%	1%	1%	0%	0%	0%	1%	0%	1%	100%	0.1228485	1.2485652	0.0028876	0.0293481
J(i)	116	Austin Rd W (depressed)	Westbound	3	194	585	38%	1%	40%	0%	2%	2%	4%	3%	1%	1%	6%	0%	0%	2%	1%	1%	100%	0.1336018	1.5150395	0.0042085	0.0477243
K(i)	114	Lin Cheung Rd (depressed)	Southbound	3	95	177	58%	0%	34%	0%	2%	0%	0%	2%	1%	1%	0%	0%	0%	1%	0%	0%	100%	0.0851190	0.7951788	0.0003982	0.0037199
L(i)	112	Lin Cheung Rd (depressed)	Northbound	3	95	494	57%	1%	22%	0%	3%	2%	4%	5%	1%	1%	1%	0%	1%	1%	0%	1%	100%	0.0916868	1.0758783	0.0011943	0.0140143
M(i)	84	Lin Cheung Rd	Southbound	3	56	650	56%	1%	23%	0%	3%	2%	4%	5%	1%	1%	1%	0%	2%	2%	0%	1%	100%	0.0948205	1.1495555	0.0009583	0.0116177
N(i)	77	Lin Cheung Rd	Northbound	3	56	844	56%	1%	22%	1%	4%	2%	5%	5%	1%	1%	1%	0%	1%	1%	0%	1%	100%	0.0948007	1.1350154	0.0012441	0.0148946
O(i)	111	Austin Rd W (depressed)	Eastbound	3	52	1003	42%	1%	40%	0%	2%	2%	4%	3%	1%	1%	1%	0%	0%	2%	0%	1%	100%	0.1225279	1.3427378	0.0017748	0.0194489
P(i)	110	Austin Rd W (depressed)	Westbound	3	52	594	42%	1%	40%	0%	2%	2%	4%	3%	1%	1%	1%	0%	1%	2%	1%	1%	100%	0.1259363	1.4357436	0.0010807	0.0123205
W(ii)	98	West Kowloon Highway (WKH)	Northbound	2	1970	4849	58%	0%	13%	0%	3%	2%	5%	4%	2%	2%	1%	0%	4%	2%	3%	0%	100%	0.0519319	1.3418356	0.1377960	3.5604241
	A	Internal Rd A	Bothbound	4	404	174	46%	0%	29%	0%	2%	0%	0%	2%	1%	1%	18%	0%	0%	1%	0%	0%	100%	0.1468798	1.3134771	0.0028631	0.0256031
	B	Internal Rd B	Bothbound	4	361	262	43%	0%	27%	0%	1%	0%	0%	2%	1%	1%	23%	0%	0%	1%	0%	0%	100%	0.1569175	1.4449279	0.0041243	0.0379771
	C	Internal Rd C	Bothbound	4	521	143	32%	0%	20%	0%	1%	0%	0%	1%	1%	1%	42%	0%	0%	0%	0%	0%	100%	0.1912270	1.8942337	0.0039439	0.0390672
X(i)	144	Reprovision of Gascoigne Rd Flyover	Westbound	3	180	1845	37%	0%	11%	1%	8%	4%	10%	12%	1%	1%	1%	0%	1%	11%	4%	0%	100%	0.1172952	2.5348958	0.0108205	0.2338441

Note: (i): Tunnel name is based on Portal & top opening of underpass in EIA of Road Works in West Kowloon.

Note: Emission rate is calculated by emission factor provided by Vehicular Emission Control Section of EPD provided the vehicle fleet average emission factors for pollutants mulitplied by traffic flow of each roads.

Scenario 4

max

		Portal/ opening ID.	Source Type	Calculated by the formula shown (extracted from the approved EIA of Road Works at West Kowloon) Emission Rate - Portal/ Opening (g/s) PM	Emission Rate - Portal/ Opening (g/s) NOx	Volume source - calculated by number of portal/opening involved Emission Rate - Portal/ Opening (g/s) - Volume PM	Emission Rate - Portal/ Opening (g/s) - Volume NOx	Area source - calculated by emission rate divided by area Emission Rate - Portal/ Opening (g/m2-s) - Area source PM	Emission Rate - Portal/ Opening (g/m2-s) - Area source NOx	(Area)	Formula from Scenario	Emission calculation formula (Extracted from the approved EIA of Road Works at West Kowloon)
53.076	0.687	A	Area	0.00073809	0.0092921	--	--	1.5026E-06	1.8917E-05	491.2	1	0.687 x Tunnel Section A
80.935	0.873	B	Area	0.00378673	0.0476726	--	--	1.1076E-05	0.00013943	341.9	1	0.873 x ((1 - 0.687) x Tunnel Section A + 1 x Tunnel Section B)
32.646	0.435	CE	Area	0.00237906	0.0289132	--	--	3.7448E-06	4.5511E-05	635.3	1	0.435 x Tunnel Section C + 0.435 x (1 - 0.873) x (1 - 0.687) x Tunnel Section A + 0.435 x (1 - 0.873) x Tunnel Section B + 0.435 x Tunnel Section E
		D1-D7		0.00381496	0.048028	0.00036333	0.0045741	--	--	--		
		D8-D14	Volume			0.00018166	0.00228705	--	--	--	1	(1 - 0.435) x Tunnel Section C + (1 - 0.435) x (1 - 0.873) x (1 - 0.687) x Tunnel Section A + (1 - 0.435) x (1 - 0.873) x Tunnel Section B + (1 - 0.435) x Tun
30	0.400	F	Area	0.00220733	0.0261924	--	--	7.9544E-06	9.4387E-05	277.5	1	0.4 x (1 - 0.435) x Tunnel Section E + 0.4 x Tunnel Section F
		I1-I4		0.01671622	0.1841758	0.00278604	0.03069596	--	--	--	1	1 x Tunnel Section I + 1 x Tunnel Section G + 1 x Tunnel Section H + 0.14 x Tunnel Section K + (1 - 0.612) x 0.38 x Tunnel SectionO + (1 - 0.4) x (1 - 0.435) x
		I5-I8	Volume			0.00139302	0.01534798	--	--	--		Tunnel Section E + (1 - 0.4) x Tunnel Section F + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+ Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel
45.868	0.612	JKO1	Area	0.00609706	0.0639633	--	--	3.9522E-06	4.1462E-05	1542.7	1	0.612 x Tunnel Section J + 0.612 x (1 - 0.14) x Tunnel Section K + 0.612 x Tunnel Section O
		L1-L5		0.00247248	0.0285236	0.00032966	0.00380314	--	--	--		1 x Tunnel Section L + (1 - 0.612) x 0.24 x Tunnel Section J + (1 - 0.612) x 0.62 x Tunnel Section O + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+
		L6-L10	Volume			0.00016483	0.00190157	--	--	--	1	Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P
		M1-M4		0.00110117	0.0132562	0.00018353	0.00220936	--	--	--		
		M5-M8	Volume			9.1764E-05	0.00110468	--	--	--	1	0.5 x (Tunnel Section M + Tunnel Section N)
		N1-N4		0.00110117	0.0132562	0.00018353	0.00220936	--	--	--		
		N5-N8	Volume			9.1764E-05	0.00110468	--	--	--	1	0.5 x (Tunnel Section M + Tunnel Section N)
		P1-P4		0.00300784	0.0315833	0.00050131	0.00526388	--	--	--		1 x Tunnel Section P + (1 - 0.612) x 0.76 x Tunnel Section J + (1 - 0.612) x 0.86 x Tunnel Section K + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+
		P5-P8	Volume			0.00025065	0.00263194	--	--	--	1	Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P
		W1-W8		0.13779605	3.5604241	0.011483	0.29670201	--	--	--		
		W9-W16	Volume			0.0057415	0.148351	--	--	--	1	1 x Tunnel W
		701-710		0.01082048	0.2338441	0.00072137	0.01558961	--	--	--	1	
		711-720	Volume			0.00036068	0.0077948	--	--	--	--	1 x Tunnel X
		BaseA	Volume	0.00364375	0.0342158	0.00364375	0.03421579					1/3 x Basement roads A,B,C
	% of Serving Rd	BaseC		0.00364375	0.0342158	0.00364375	0.03421579					1/3 x Basement roads A,B,C
	Out of 500m	801-820	Volume			--	--	--	--	--	1	1 x Tunnel Y
	Out of 500m	901-903				--	--	--	--	--		1 x Tunnel Z
	Out of 500m	904-906	Volume			--	--	--	--	--	1	
	Out of 500m	V1	Point								from 1-4	--

Appendix 3.18d - Emission Rates of Portal, Top Openings and Ventilation Exhaust (Hr19-20)

Remarks (Tunnel name - Portal & top opening of underpass in EIA of Rd Works in WK)	WKCD section no.	Road name	Bound	Road Type	Length (m)	Total (veh/hr)	PC	taxi	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	Total	Rate (g/km-veh) PM	Rate (g/km-veh) NOx	Emission Rate (g/s) PM	Emission Rate (g/s) NOx
							Hr 19-20 (2015 EIA_19-12-2011.xls)																				
A(i)	73	Lin Cheung Rd (underpass)	Northbound	3	470	470	54%	1%	21%	0%	3%	2%	4%	5%	1%	1%	1%	0%	2%	2%	0%	1%	100%	0.0993966	1.2553367	0.0009473	0.0119641
B(i)	73	Lin Cheung Rd (underpass)	Northbound	3	272	470	54%	1%	21%	0%	3%	2%	4%	5%	1%	1%	1%	0%	2%	2%	0%	1%	100%	0.0993966	1.2553367	0.0035297	0.0445784
C(i)	73	Lin Cheung Rd (underpass)	Northbound	3	110	470	54%	1%	21%	0%	3%	2%	4%	5%	1%	1%	1%	0%	2%	2%	0%	1%	100%	0.0993966	1.2553367	0.0014274	0.0180280
D(i)	73	Lin Cheung Rd (underpass)	Northbound	3	176	470	54%	1%	21%	0%	3%	2%	4%	5%	1%	1%	1%	0%	2%	2%	0%	1%	100%	0.0993966	1.2553367	0.0022839	0.0288448
E(i)	72	Lin Cheung Rd (underpass)	Southbound	3	155	810	56%	1%	23%	1%	3%	1%	4%	5%	1%	1%	1%	0%	1%	1%	0%	1%	100%	0.0946940	1.1070114	0.0033025	0.0386070
F(i)	72	Lin Cheung Rd (depressed)	Southbound	3	172	810	56%	1%	23%	1%	3%	1%	4%	5%	1%	1%	1%	0%	1%	1%	0%	1%	100%	0.0946940	1.1070114	0.0036647	0.0428413
G(i)	118	Lin Cheung Rd (depressed)	Southbound	3	121	765	56%	1%	22%	1%	3%	1%	5%	5%	1%	1%	1%	0%	1%	1%	0%	1%	100%	0.0943951	1.1249346	0.0024271	0.0289249
H(i)	119	Austin Rd W (depressed)	Eastbound	3	173	1230	39%	1%	44%	0%	2%	2%	4%	3%	1%	1%	0%	0%	0%	2%	0%	1%	100%	0.1307413	1.3764898	0.0077279	0.0813620
I(i)	117	Austin Rd W (depressed)	Eastbound	3	194	425	41%	1%	44%	0%	1%	1%	5%	2%	1%	1%	0%	0%	0%	1%	0%	1%	100%	0.1272482	1.2708359	0.0029143	0.0291057
J(i)	116	Austin Rd W (depressed)	Westbound	3	194	570	37%	1%	40%	0%	2%	2%	4%	3%	1%	1%	6%	0%	0%	2%	1%	1%	100%	0.1374107	1.5469820	0.0042208	0.0475181
K(i)	114	Lin Cheung Rd (depressed)	Southbound	3	95	165	61%	0%	33%	0%	3%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.0837406	0.7390958	0.0003646	0.0032181
L(i)	112	Lin Cheung Rd (depressed)	Northbound	3	95	445	56%	1%	21%	0%	3%	2%	4%	4%	1%	1%	1%	0%	1%	1%	0%	1%	100%	0.0951883	1.1252717	0.0011178	0.0132141
M(i)	84	Lin Cheung Rd	Southbound	3	56	650	56%	1%	24%	0%	3%	2%	4%	5%	1%	1%	1%	0%	2%	2%	0%	1%	100%	0.0965061	1.1424376	0.0009758	0.0115513
N(i)	77	Lin Cheung Rd	Northbound	3	56	745	55%	1%	21%	1%	3%	2%	5%	5%	1%	1%	1%	0%	1%	1%	0%	1%	100%	0.0972510	1.1633760	0.0011270	0.0134822
O(i)	111	Austin Rd W (depressed)	Eastbound	3	52	1000	41%	1%	43%	0%	2%	2%	4%	3%	1%	1%	1%	0%	1%	2%	1%	1%	100%	0.1284244	1.3757389	0.0018550	0.0198718
P(i)	110	Austin Rd W (depressed)	Westbound	3	52	590	40%	1%	42%	0%	2%	2%	4%	3%	1%	1%	1%	0%	1%	2%	1%	1%	100%	0.1316538	1.4708751	0.0011220	0.0125351
W(ii)	98	West Kowloon Highway (WKH)	Northbound	2	1970	3605	57%	0%	13%	0%	3%	2%	5%	4%	2%	2%	1%	0%	4%	2%	3%	0%	100%	0.0526031	1.3506539	0.1037721	2.6644837
	A	Internal Rd A	Bothbound	4	404	160	47%	0%	28%	0%	3%	0%	0%	3%	0%	0%	19%	0%	0%	0%	0%	0%	100%	0.1500838	1.3633630	0.0026948	0.0244799
	B	Internal Rd B	Bothbound	4	361	245	43%	0%	27%	0%	2%	0%	0%	2%	2%	0%	24%	0%	0%	0%	0%	0%	100%	0.1581700	1.4628400	0.0038859	0.0359391
	C	Internal Rd C	Bothbound	4	521	130	35%	0%	19%	0%	0%	0%	0%	0%	0%	0%	46%	0%	0%	0%	0%	0%	100%	0.1930660	1.9136558	0.0036323	0.0360033
X(i)	144	Reprovision of Gascoigne Rd Flyover	Westbound	3	180	1850	36%	0%	11%	1%	8%	4%	10%	12%	1%	1%	1%	0%	1%	11%	4%	0%	100%	0.1202781	2.5526715	0.0111257	0.2361221

Note: (i): Tunnel name is based on Portal & top opening of underpass in EIA of Road Works in West Kowloon.

Note: Emission rate is calculated by emission factor provided by Vehicular Emission Control Section of EPD provided the vehicle fleet average emission factors for pollutants mulitplied by traffic flow of each roads.

Scenario 4

max

						Calculated by the formula shown (extracted from the approved EIA of Road Works at West Kowloon)		Volume source - calculated by number of portal/opening involved		Area source - calculated by emission rate divided by area				
						Emission Rate - Portal/ Opening (g/s)		Emission Rate - Portal/ Opening (g/s) - Volume		Emission Rate - Portal/ Opening (g/m2-s) - Area source				
			Portal/ opening ID.	Source Type		PM	NOx	PM	NOx	PM	NOx	(Area)	Formula from Scenario	Emission calculation formula (Extracted from the approved EIA of Road Works at West Kowloon)
53.076	0.687		A	Area		0.00065096	0.0082214	–	–	1.3252E-06	1.6737E-05	491.2	1	0.687 x Tunnel Section A
80.935	0.873		B	Area		0.00333974	0.0421795	–	–	9.7682E-06	0.00012337	341.9	1	0.873 x ((1 - 0.687) x Tunnel Section A + 1 x Tunnel Section B)
32.646	0.435		CE	Area		0.0022705	0.0273254	–	–	3.5739E-06	4.3012E-05	635.3	1	0.435 x Tunnel Section C + 0.435 x (1 - 0.873) x (1 - 0.687) x Tunnel Section A + 0.435 x (1 - 0.873) x Tunnel Section B + 0.435 x Tunnel Section E
			D1-D7			0.00336464	0.0424939	0.00032044	0.00404704	–	–	–		
			D8-D14	Volume				0.00016022	0.00202352	–	–	–	1	(1 - 0.435) x Tunnel Section C + (1 - 0.435) x (1 - 0.873) x (1 - 0.687) x Tunnel Section A + (1 - 0.435) x (1 - 0.873) x Tunnel Section B + (1 - 0.435) x Tun
30	0.400		F	Area		0.00221185	0.0258574	–	–	7.9706E-06	9.318E-05	277.5	1	0.4 x (1 - 0.435) x Tunnel Section E + 0.4 x Tunnel Section F
			I1-I4			0.01709692	0.1853095	0.00284949	0.03088492	–	–	–	1	1 x Tunnel Section I + 1 x Tunnel Section G + 1 x Tunnel Section H + 0.14 x Tunnel Section K + (1 - 0.612) x 0.38 x Tunnel SectionO + (1 - 0.4) x (1 - 0.435) x
			I5-I8	Volume				0.00142474	0.01544246	–	–	–		Tunnel Section E + (1 - 0.4) x Tunnel Section F + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+ Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel
45.868	0.612		JKO1	Area		0.0059896	0.0625629	–	–	3.8825E-06	4.0554E-05	1542.7	1	0.612 x Tunnel Section J + 0.612 x (1 - 0.14) x Tunnel Section K + 0.612 x Tunnel Section O
			L1-L5			0.00236105	0.027542	0.00031481	0.00367227	–	–	–		1 x Tunnel Section L + (1 - 0.612) x 0.24 x Tunnel Section J + (1 - 0.612) x 0.62 x Tunnel Section O + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+
			L6-L10	Volume				0.0001574	0.00183613	–	–	–	1	Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P
			M1-M4			0.00105141	0.0125168	0.00017523	0.00208613	–	–	–		
			M5-M8	Volume				8.7617E-05	0.00104306	–	–	–	1	0.5 x (Tunnel Section M + Tunnel Section N)
			N1-N4			0.00105141	0.0125168	0.00017523	0.00208613	–	–	–		
			N5-N8	Volume				8.7617E-05	0.00104306	–	–	–	1	0.5 x (Tunnel Section M + Tunnel Section N)
			P1-P4			0.00302415	0.0312624	0.00050403	0.00521039	–	–	–		1 x Tunnel Section P + (1 - 0.612) x 0.76 x Tunnel Section J + (1 - 0.612) x 0.86 x Tunnel Section K + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+
			P5-P8	Volume				0.00025201	0.0026052	–	–	–	1	Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P
			W1-W8			0.10377213	2.6644837	0.00864768	0.22204031	–	–	–		
			W9-W16	Volume				0.00432384	0.11102015	–	–	–	1	1 x Tunnel W
			701-710			0.01112573	0.2361221	0.00074172	0.01574147	–	–	–	1	
			711-720	Volume				0.00037086	0.00787074	–	–	–	–	1 x Tunnel X
			BaseA	Volume		0.00340436	0.0321408	0.00340436	0.03214079					1/3 x Basement roads A,B,C
	% of Serving Rd		BaseC			0.00340436	0.0321408	0.00340436	0.03214079					1/3 x Basement roads A,B,C
		Out of 500m	801-820	Volume				–	–	–	–	–	1	1 x Tunnel Y
		Out of 500m	901-903					–	–	–	–	–		1 x Tunnel Z
		Out of 500m	904-906	Volume				–	–	–	–	–	1	
		Out of 500m	V1	Point									from 1-4	–

Appendix 3.18d - Emission Rates of Portal, Top Openings and Ventilation Exhaust (Hr20-21)

Remarks (Tunnel name - Portal & top opening of underpass in EIA of Rd Works in WK)	WKCD section no.	Road name	Bound	Road Type	Length (m)	Total (veh/hr)	Hr 20-21 (2015 EIA_19-12-2011.xls) PC	taxi	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	Total	Rate (g/km-) PM	NOx	Emission Rate (g/s) PM	NOx
A(!)	73	Lin Cheung Rd (underpass)	Northbound	3	460	460	54%	1%	21%	0%	3%	2%	4%	5%	1%	1%	1%	0%	2%	2%	0%	1%	100%	0.0944516	1.2245355	0.0008810	0.0114222
B(!)	73	Lin Cheung Rd (underpass)	Northbound	3	272	460	54%	1%	21%	0%	3%	2%	4%	5%	1%	1%	1%	0%	2%	2%	0%	1%	100%	0.0944516	1.2245355	0.0032827	0.0425594
C(!)	73	Lin Cheung Rd (underpass)	Northbound	3	110	460	54%	1%	21%	0%	3%	2%	4%	5%	1%	1%	1%	0%	2%	2%	0%	1%	100%	0.0944516	1.2245355	0.0013276	0.0172115
D(!)	73	Lin Cheung Rd (underpass)	Northbound	3	176	460	54%	1%	21%	0%	3%	2%	4%	5%	1%	1%	1%	0%	2%	2%	0%	1%	100%	0.0944516	1.2245355	0.0021241	0.0275384
E(!)	72	Lin Cheung Rd (underpass)	Southbound	3	155	540	56%	1%	23%	1%	3%	1%	5%	5%	1%	1%	1%	0%	1%	1%	0%	1%	100%	0.0906412	1.0507031	0.0021074	0.0244288
F(!)	72	Lin Cheung Rd (depressed)	Southbound	3	172	540	56%	1%	23%	1%	3%	1%	5%	5%	1%	1%	1%	0%	1%	1%	0%	1%	100%	0.0906412	1.0507031	0.0023385	0.0271081
G(!)	118	Lin Cheung Rd (depressed)	Southbound	3	121	515	55%	1%	21%	1%	3%	1%	5%	5%	2%	1%	1%	0%	2%	1%	0%	1%	100%	0.0929131	1.1244962	0.0016083	0.0194647
H(!)	119	Austin Rd W (depressed)	Eastbound	3	173	1035	38%	1%	45%	0%	1%	1%	4%	3%	1%	1%	0%	0%	0%	1%	0%	1%	100%	0.1275903	1.3494626	0.0063460	0.0671189
I(!)	117	Austin Rd W (depressed)	Eastbound	3	194	355	39%	1%	44%	0%	1%	1%	4%	3%	1%	1%	0%	0%	0%	1%	0%	1%	100%	0.1231362	1.2569750	0.0023557	0.0240456
J(!)	116	Austin Rd W (depressed)	Westbound	3	194	475	35%	1%	41%	0%	2%	2%	4%	2%	1%	1%	6%	0%	0%	2%	1%	1%	100%	0.1336804	1.5647378	0.0034218	0.0400529
K(!)	114	Lin Cheung Rd (depressed)	Southbound	3	95	130	58%	0%	35%	0%	4%	0%	0%	4%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.0855512	0.7767962	0.0002935	0.0026648
L(!)	112	Lin Cheung Rd (depressed)	Northbound	3	95	455	56%	1%	22%	0%	3%	2%	4%	4%	1%	1%	1%	0%	1%	1%	0%	1%	100%	0.0914883	1.0890215	0.0010985	0.0130758
M(!)	84	Lin Cheung Rd	Southbound	3	56	455	56%	1%	23%	0%	3%	1%	4%	4%	1%	1%	1%	0%	1%	1%	0%	1%	100%	0.0908042	1.0737254	0.0006427	0.0075996
N(!)	77	Lin Cheung Rd	Northbound	3	56	750	55%	1%	22%	1%	3%	2%	5%	5%	1%	1%	1%	0%	1%	1%	0%	1%	100%	0.0958090	1.1643613	0.0011178	0.0135842
O(!)	111	Austin Rd W (depressed)	Eastbound	3	52	845	38%	1%	44%	0%	2%	2%	4%	3%	1%	1%	1%	0%	1%	2%	1%	1%	100%	0.1283498	1.4139561	0.0015666	0.0172581
P(!)	110	Austin Rd W (depressed)	Westbound	3	52	505	39%	1%	43%	0%	2%	2%	4%	2%	1%	1%	1%	0%	1%	2%	1%	1%	100%	0.1276585	1.4798679	0.0009312	0.0107948
W(!)	98	West Kowloon Highway (WKH)	Northbound	2	1970	2370	57%	0%	14%	0%	3%	2%	5%	4%	2%	2%	1%	0%	4%	2%	3%	0%	100%	0.0541399	1.3754610	0.0702149	1.7838583
	A	Internal Rd A	Bothbound	4	404	125	44%	0%	28%	0%	4%	0%	0%	4%	0%	0%	20%	0%	0%	0%	0%	0%	100%	0.1511370	1.4181344	0.0021201	0.0198933
	B	Internal Rd B	Bothbound	4	361	185	43%	0%	27%	0%	3%	0%	0%	3%	0%	0%	24%	0%	0%	0%	0%	0%	100%	0.1573047	1.4827939	0.0029182	0.0275079
	C	Internal Rd C	Bothbound	4	521	95	32%	0%	21%	0%	0%	0%	0%	0%	0%	0%	47%	0%	0%	0%	0%	0%	100%	0.2028960	2.0048960	0.0027867	0.0275645
X(!)	144	Reprovision of Gascoigne Rd Flyover	Westbound	3	180	1245	36%	0%	11%	1%	8%	4%	10%	12%	1%	1%	1%	0%	0%	10%	4%	0%	100%	0.1159785	2.4957565	0.0072197	0.1553608

Note: (!): Tunnel name is based on Portal & top opening of underpass in EIA of Road Works in West Kowloon.

Note: Emission rate is calculated by emission factor provided by Vehicular Emission Control Section of EPD provided the vehicle fleet average emission factors for pollutants mulitplied by traffic flow of each roads.

Scenario 4

max

						Calculated by the formula shown (extracted from the approved EIA of Road Works at West Kowloon) Emission Rate - Portal/ Opening (g/s)		Volume source - calculated by number of portal/opening involved Emission Rate - Portal/ Opening (g/s) - Volume		Area source - calculated by emission rate divided by area Emission Rate - Portal/ Opening (g/m2-s) - Area source				
			Portal/ opening ID.	Source Type	PM	NOx	PM	NOx	PM	NOx	(Area)	Formula from Scenario	Emission calculation formula (Extracted from the approved EIA of Road Works at West Kowloon)
53.076	0.687		A	Area	0.00060542	0.007849	--	--	1.2325E-06	1.5979E-05	491.2	1	0.687 x Tunnel Section A
80.935	0.873		B	Area	0.00310606	0.0402691	--	--	9.0847E-06	0.00011778	341.9	1	0.873 x ((1 - 0.687) x Tunnel Section A + 1 x Tunnel Section B)
32.646	0.435		CE	Area	0.00169204	0.0206775	--	--	2.6634E-06	3.2548E-05	635.3	1	0.435 x Tunnel Section C + 0.435 x (1 - 0.873) x (1 - 0.687) x Tunnel Section A + 0.435 x (1 - 0.873) x Tunnel Section B + 0.435 x Tunnel Section E
			D1-D7		0.00312922	0.0405693	0.00029802	0.00386375	--	--	--		
			D8-D14	Volume			0.00014901	0.00193187	--	--	--	1	(1 - 0.435) x Tunnel Section C + (1 - 0.435) x (1 - 0.873) x (1 - 0.687) x Tunnel Section A + (1 - 0.435) x (1 - 0.873) x Tunnel Section B + (1 - 0.435) x Tun
30	0.400		F	Area	0.00141146	0.0163614	--	--	5.0863E-06	5.896E-05	277.5	1	0.4 x (1 - 0.435) x Tunnel Section E + 0.4 x Tunnel Section F
			I1-I4		0.012973	0.1409474	0.00216217	0.02349123	--	--	--	1	1 x Tunnel Section I + 1 x Tunnel Section G + 1 x Tunnel Section H + 0.14 x Tunnel Section K + (1 - 0.612) x 0.38 x Tunnel SectionO + (1 - 0.4) x (1 - 0.435) x
			I5-I8	Volume			0.00108108	0.01174561	--	--	--		Tunnel Section E + (1 - 0.4) x Tunnel Section F + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+ Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel
45.868	0.612		JKO1	Area	0.00480033	0.0517338	--	--	3.1116E-06	3.3535E-05	1542.7	1	0.612 x Tunnel Section J + 0.612 x (1 - 0.14) x Tunnel Section K + 0.612 x Tunnel Section O
			L1-L5		0.00214531	0.0250225	0.00028604	0.00333633	--	--	--		1 x Tunnel Section L + (1 - 0.612) x 0.24 x Tunnel Section J + (1 - 0.612) x 0.62 x Tunnel Section O + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+
			L6-L10	Volume			0.00014302	0.00166817	--	--	--	1	Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P
			M1-M4		0.00088023	0.0105919	0.00014671	0.00176532	--	--	--		
			M5-M8	Volume			7.3353E-05	0.00088266	--	--	--	1	0.5 x (Tunnel Section M + Tunnel Section N)
			N1-N4		0.00088023	0.0105919	0.00014671	0.00176532	--	--	--		
			N5-N8	Volume			7.3353E-05	0.00088266	--	--	--	1	0.5 x (Tunnel Section M + Tunnel Section N)
			P1-P4		0.00242846	0.0263038	0.00040474	0.00438397	--	--	--		1 x Tunnel Section P + (1 - 0.612) x 0.76 x Tunnel Section J + (1 - 0.612) x 0.86 x Tunnel Section K + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+
			P5-P8	Volume			0.00020237	0.00219198	--	--	--	1	Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P
			W1-W8		0.07021488	1.7838583	0.00585124	0.14865486	--	--	--		
			W9-W16	Volume			0.00292562	0.07432743	--	--	--	1	1 x Tunnel W
			701-710		0.00721966	0.1553608	0.00048131	0.01035739	--	--	--	1	
			711-720	Volume			0.00024066	0.00517869	--	--	--	--	1 x Tunnel X
			BaseA	Volume	0.00260833	0.0249886	0.00260833	0.02498857					1/3 x Basement roads A,B,C
	% of Serving Rd		BaseC		0.00260833	0.0249886	0.00260833	0.02498857					1/3 x Basement roads A,B,C
		Out of 500m	801-820	Volume			--	--	--	--	--	1	1 x Tunnel Y
		Out of 500m	901-903				--	--	--	--	--		1 x Tunnel Z
		Out of 500m	904-906	Volume			--	--	--	--	--	1	
		Out of 500m	V1	Point								from 1-4	--

Appendix 3.18d - Emission Rates of Portal, Top Openings and Ventilation Exhaust (Hr21-22)

Remarks (Tunnel name - Portal & top opening of underpass in EIA of Rd Works in WK)	WKCD section no.	Road name	Bound	Road Type	Length (m)	Total (veh/hr)	PC	taxi	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	Total	Rate (g/km-veh) PM	Rate (g/km-veh) NOx	Emission Rate (g/s) PM	Emission Rate (g/s) NOx
							Hr 21-22 (2015 EIA_19-12-2011.xls)																				
A(i)	73	Lin Cheung Rd (underpass)	Northbound	3	273	380	54%	1%	21%	0%	4%	1%	5%	5%	1%	1%	1%	0%	1%	1%	0%	1%	100%	0.0940925	1.1669996	0.0007250	0.0089924
B(i)	73	Lin Cheung Rd (underpass)	Northbound	3	272	380	54%	1%	21%	0%	4%	1%	5%	5%	1%	1%	1%	0%	1%	1%	0%	1%	100%	0.0940925	1.1669996	0.0027015	0.0335059
C(i)	73	Lin Cheung Rd (underpass)	Northbound	3	110	380	54%	1%	21%	0%	4%	1%	5%	5%	1%	1%	1%	0%	1%	1%	0%	1%	100%	0.0940925	1.1669996	0.0010925	0.0135502
D(i)	73	Lin Cheung Rd (underpass)	Northbound	3	176	380	54%	1%	21%	0%	4%	1%	5%	5%	1%	1%	1%	0%	1%	1%	0%	1%	100%	0.0940925	1.1669996	0.0017480	0.0216803
E(i)	72	Lin Cheung Rd (underpass)	Southbound	3	155	540	55%	1%	23%	1%	3%	1%	5%	5%	2%	1%	1%	0%	2%	1%	0%	1%	100%	0.0945830	1.1215795	0.0021991	0.0260767
F(i)	72	Lin Cheung Rd (depressed)	Southbound	3	172	540	55%	1%	23%	1%	3%	1%	5%	5%	2%	1%	1%	0%	2%	1%	0%	1%	100%	0.0945830	1.1215795	0.0024402	0.0289367
G(i)	118	Lin Cheung Rd (depressed)	Southbound	3	121	530	55%	1%	22%	1%	3%	2%	5%	5%	2%	1%	1%	0%	2%	1%	0%	1%	100%	0.0948913	1.1392194	0.0016904	0.0202939
H(i)	119	Austin Rd W (depressed)	Eastbound	3	173	1050	36%	1%	46%	0%	1%	1%	4%	3%	1%	1%	0%	0%	0%	1%	1%	1%	100%	0.1321211	1.4500809	0.0066666	0.0731687
I(i)	117	Austin Rd W (depressed)	Eastbound	3	194	355	38%	1%	45%	0%	1%	1%	4%	3%	1%	1%	0%	0%	0%	1%	0%	1%	100%	0.1260448	1.2793054	0.0024113	0.0244738
J(i)	116	Austin Rd W (depressed)	Westbound	3	194	465	34%	1%	42%	0%	2%	2%	4%	2%	1%	1%	5%	0%	0%	2%	1%	1%	100%	0.1345154	1.5696270	0.0033707	0.0393322
K(i)	114	Lin Cheung Rd (depressed)	Southbound	3	95	115	61%	0%	35%	0%	0%	0%	0%	4%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.0818698	0.6878634	0.0002485	0.0020875
L(i)	112	Lin Cheung Rd (depressed)	Northbound	3	95	405	54%	1%	22%	0%	2%	2%	5%	5%	1%	1%	1%	0%	1%	1%	0%	1%	100%	0.0955293	1.1445932	0.0010210	0.0122328
M(i)	84	Lin Cheung Rd	Southbound	3	56	455	54%	1%	23%	0%	3%	2%	4%	4%	1%	1%	1%	0%	2%	1%	0%	1%	100%	0.0982598	1.1898591	0.0006955	0.0084216
N(i)	77	Lin Cheung Rd	Northbound	3	56	645	54%	1%	22%	1%	3%	2%	5%	5%	2%	1%	1%	0%	2%	2%	0%	1%	100%	0.0969162	1.1919187	0.0009724	0.0119589
O(i)	111	Austin Rd W (depressed)	Eastbound	3	52	840	36%	1%	45%	0%	2%	2%	4%	3%	1%	1%	1%	0%	1%	2%	1%	1%	100%	0.1320770	1.5074457	0.0016025	0.0182903
P(i)	110	Austin Rd W (depressed)	Westbound	3	52	500	36%	1%	45%	0%	2%	2%	4%	2%	1%	1%	1%	0%	1%	2%	1%	1%	100%	0.1332813	1.5280592	0.0009626	0.0110360
W(ii)	98	West Kowloon Highway (WKH)	Northbound	2	1970	1765	57%	0%	14%	0%	3%	2%	5%	4%	3%	2%	1%	0%	4%	2%	3%	0%	100%	0.0533533	1.3774921	0.0515311	1.3304479
	A	Internal Rd A	Bothbound	4	404	100	45%	0%	30%	0%	0%	0%	0%	5%	0%	0%	20%	0%	0%	0%	0%	0%	100%	0.1526722	1.3576760	0.0017133	0.0152361
	B	Internal Rd B	Bothbound	4	361	160	41%	0%	28%	0%	3%	0%	0%	3%	0%	0%	25%	0%	0%	0%	0%	0%	100%	0.1653254	1.5557151	0.0026526	0.0249606
	C	Internal Rd C	Bothbound	4	521	80	31%	0%	19%	0%	0%	0%	0%	0%	0%	0%	50%	0%	0%	0%	0%	0%	100%	0.2096886	2.0813385	0.0024277	0.0240973
X(i)	144	Reprovision of Gascoigne Rd Flyover	Westbound	3	180	1250	36%	0%	11%	1%	7%	4%	11%	12%	1%	1%	1%	0%	0%	10%	4%	0%	100%	0.1159747	2.5378733	0.0072484	0.1586171

Note: (i): Tunnel name is based on Portal & top opening of underpass in EIA of Road Works in West Kowloon.

Note: Emission rate is calculated by emission factor provided by Vehicular Emission Control Section of EPD provided the vehicle fleet average emission factors for pollutants mulitplied by traffic flow of each roads.

Scenario 4

max

					Calculated by the formula shown (extracted from the approved EIA of Road Works at West Kowloon)		Volume source - calculated by number of portal/opening involved		Area source - calculated by emission rate divided by area				
					Emission Rate - Portal/ Opening (g/s)		Emission Rate - Portal/ Opening (g/s) - Volume		Emission Rate - Portal/ Opening (g/m2-s) - Area source				
			Portal/ opening ID.	Source Type	PM	NOx	PM	NOx	PM	NOx	(Area)	Formula from Scenario	Emission calculation formula (Extracted from the approved EIA of Road Works at West Kowloon)
53.076	0.687		A	Area	0.00049822	0.0061793	–	–	1.0143E-06	1.258E-05	491.2	1	0.687 x Tunnel Section A
80.935	0.873		B	Area	0.00255612	0.0317028	–	–	7.4762E-06	9.2725E-05	341.9	1	0.873 x ((1 - 0.687) x Tunnel Section A + 1 x Tunnel Section B)
32.646	0.435		CE	Area	0.00159476	0.0192581	–	–	2.5103E-06	3.0313E-05	635.3	1	0.435 x Tunnel Section C + 0.435 x (1 - 0.873) x (1 - 0.687) x Tunnel Section A + 0.435 x (1 - 0.873) x Tunnel Section B + 0.435 x Tunnel Section E
			D1-D7		0.00257518	0.0319391	0.00024526	0.00304182	–	–	–		
			D8-D14	Volume			0.00012263	0.00152091	–	–	–	1	(1 - 0.435) x Tunnel Section C + (1 - 0.435) x (1 - 0.873) x (1 - 0.687) x Tunnel Section A + (1 - 0.435) x (1 - 0.873) x Tunnel Section B + (1 - 0.435) x Tun
30	0.400		F	Area	0.00147284	0.0174651	–	–	5.3075E-06	6.2937E-05	277.5	1	0.4 x (1 - 0.435) x Tunnel Section E + 0.4 x Tunnel Section F
			I1-I4		0.0134967	0.1495925	0.00224945	0.02493208	–	–	–	1	1 x Tunnel Section I + 1 x Tunnel Section G + 1 x Tunnel Section H + 0.14 x Tunnel Section K + (1 - 0.612) x 0.38 x Tunnel SectionO + (1 - 0.4) x (1 - 0.435) x
			I5-I8	Volume			0.00112473	0.01246604	–	–	–		Tunnel Section E + (1 - 0.4) x Tunnel Section F + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+ Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel
45.868	0.612		JKO1	Area	0.00455712	0.0494452	–	–	2.954E-06	3.2051E-05	1542.7	1	0.612 x Tunnel Section J + 0.612 x (1 - 0.14) x Tunnel Section K + 0.612 x Tunnel Section O
			L1-L5		0.00200386	0.0238274	0.00026718	0.00317699	–	–	–		1 x Tunnel Section L + (1 - 0.612) x 0.24 x Tunnel Section J + (1 - 0.612) x 0.62 x Tunnel Section O + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+
			L6-L10	Volume			0.00013359	0.00158849	–	–	–	1	Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P
			M1-M4		0.00083393	0.0101902	0.00013899	0.00169837	–	–	–		
			M5-M8	Volume			6.9494E-05	0.00084919	–	–	–	1	0.5 x (Tunnel Section M + Tunnel Section N)
			N1-N4		0.00083393	0.0101902	0.00013899	0.00169837	–	–	–		
			N5-N8	Volume			6.9494E-05	0.00084919	–	–	–	1	0.5 x (Tunnel Section M + Tunnel Section N)
			P1-P4		0.00238969	0.0256792	0.00039828	0.00427987	–	–	–		1 x Tunnel Section P + (1 - 0.612) x 0.76 x Tunnel Section J + (1 - 0.612) x 0.86 x Tunnel Section K + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+
			P5-P8	Volume			0.00019914	0.00213994	–	–	–	1	Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P
			W1-W8		0.05153115	1.330447	0.00429426	0.11087058	–	–	–		
			W9-W16	Volume			0.00214713	0.05543529	–	–	–	1	1 x Tunnel W
			701-710		0.00724842	0.1586171	0.00048323	0.01057447	–	–	–	1	
			711-720	Volume			0.00024161	0.00528724	–	–	–	–	1 x Tunnel X
			BaseA	Volume	0.00226453	0.0214313	0.00226453	0.02143133					1/3 x Basement roads A,B,C
	% of Serving Rd		BaseC		0.00226453	0.0214313	0.00226453	0.02143133					1/3 x Basement roads A,B,C
		Out of 500m	801-820	Volume			–	–	–	–	–	1	1 x Tunnel Y
		Out of 500m	901-903				–	–	–	–	–		1 x Tunnel Z
		Out of 500m	904-906	Volume			–	–	–	–	–	1	
		Out of 500m	V1	Point								from 1-4	–

Appendix 3.18d - Emission Rates of Portal, Top Openings and Ventilation Exhaust (Hr22-23)

Remarks (Tunnel name - Portal & top opening of underpass in EIA of Rd Works in WK)	WKCD section no.	Road name	Bound	Road Type	Length (m)	Total (veh/hr)	PC	taxi	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	Total	Rate (g/km-) PM	Rate (g/km-) NOx	Emission Rate (g/s) PM	Emission Rate (g/s) NOx
							Hr 22-23 (2015 EIA_19-12-2011.xls)																				
A(i)	73	Lin Cheung Rd (underpass)	Northbound	3	272	300	53%	2%	22%	0%	3%	2%	5%	5%	2%	2%	2%	0%	2%	2%	0%	0%	100%	0.0953154	1.2002245	0.0005798	0.0073014
B(i)	73	Lin Cheung Rd (underpass)	Northbound	3	272	300	53%	2%	22%	0%	3%	2%	5%	5%	2%	2%	2%	0%	2%	2%	0%	0%	100%	0.0953154	1.2002245	0.0021605	0.0272051
C(i)	73	Lin Cheung Rd (underpass)	Northbound	3	110	300	53%	2%	22%	0%	3%	2%	5%	5%	2%	2%	2%	0%	2%	2%	0%	0%	100%	0.0953154	1.2002245	0.0008737	0.0110021
D(i)	73	Lin Cheung Rd (underpass)	Northbound	3	176	300	53%	2%	22%	0%	3%	2%	5%	5%	2%	2%	2%	0%	2%	2%	0%	0%	100%	0.0953154	1.2002245	0.0013980	0.0176033
E(i)	72	Lin Cheung Rd (underpass)	Southbound	3	155	410	55%	1%	23%	0%	2%	1%	5%	5%	1%	1%	1%	0%	1%	1%	0%	1%	100%	0.0925218	1.1036981	0.0016333	0.0194833
F(i)	72	Lin Cheung Rd (depressed)	Southbound	3	172	410	55%	1%	23%	0%	2%	1%	5%	5%	1%	1%	1%	0%	1%	1%	0%	1%	100%	0.0925218	1.1036981	0.0018124	0.0216202
G(i)	118	Lin Cheung Rd (depressed)	Southbound	3	121	400	55%	1%	23%	0%	3%	1%	5%	5%	1%	1%	1%	0%	1%	1%	0%	1%	100%	0.0921177	1.1094109	0.0012385	0.0149154
H(i)	119	Austin Rd W (depressed)	Eastbound	3	173	860	35%	1%	47%	0%	2%	2%	5%	2%	1%	1%	1%	0%	1%	1%	1%	2%	100%	0.1358599	1.5011441	0.0056148	0.0620389
I(i)	117	Austin Rd W (depressed)	Eastbound	3	194	280	38%	2%	46%	0%	2%	2%	4%	2%	2%	0%	0%	0%	0%	2%	0%	2%	100%	0.1256163	1.2766566	0.0018954	0.0192633
J(i)	116	Austin Rd W (depressed)	Westbound	3	194	360	35%	1%	43%	0%	1%	1%	4%	3%	1%	0%	6%	0%	0%	1%	1%	1%	100%	0.1326806	1.5171168	0.0025740	0.0294321
K(i)	114	Lin Cheung Rd (depressed)	Southbound	3	95	110	59%	0%	32%	0%	5%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.0811531	0.7553685	0.0002356	0.0021927
L(i)	112	Lin Cheung Rd (depressed)	Northbound	3	95	335	54%	1%	22%	0%	3%	1%	4%	4%	1%	1%	1%	0%	1%	1%	0%	1%	100%	0.0921965	1.1342608	0.0008150	0.0100272
M(i)	84	Lin Cheung Rd	Southbound	3	56	355	55%	1%	24%	0%	3%	1%	4%	4%	1%	1%	1%	0%	1%	1%	0%	0%	100%	0.0929667	1.1149716	0.0005134	0.0061571
N(i)	77	Lin Cheung Rd	Northbound	3	56	525	54%	1%	23%	0%	3%	2%	5%	5%	2%	1%	1%	0%	2%	1%	0%	1%	100%	0.0956100	1.1435129	0.0007808	0.0093387
O(i)	111	Austin Rd W (depressed)	Eastbound	3	52	705	36%	1%	46%	0%	1%	1%	4%	3%	1%	1%	1%	0%	1%	1%	1%	1%	100%	0.1321463	1.4324072	0.0013457	0.0145867
P(i)	110	Austin Rd W (depressed)	Westbound	3	52	410	35%	1%	45%	0%	1%	1%	5%	2%	1%	1%	1%	0%	1%	1%	1%	1%	100%	0.1351002	1.5335894	0.0008001	0.0090823
W(i)	98	West Kowloon Highway (WKH)	Northbound	2	1970	1755	56%	0%	14%	0%	3%	2%	5%	4%	3%	2%	1%	0%	4%	2%	3%	0%	100%	0.0535651	1.3757223	0.0514425	1.3212093
	A	Internal Rd A	Bothbound	4	404	105	43%	0%	29%	0%	5%	0%	0%	5%	0%	0%	19%	0%	0%	0%	0%	0%	100%	0.1513914	1.4363008	0.0017839	0.0169244
	B	Internal Rd B	Bothbound	4	361	155	42%	0%	26%	0%	3%	0%	0%	3%	0%	0%	26%	0%	0%	0%	0%	0%	100%	0.1631965	1.5598607	0.0025366	0.0242450
	C	Internal Rd C	Bothbound	4	521	75	33%	0%	20%	0%	0%	0%	0%	0%	0%	0%	47%	0%	0%	0%	0%	0%	100%	0.2107940	2.0557596	0.0022880	0.0223136
X(i)	144	Reprovision of Gascoigne Rd Flyover	Westbound	3	180	1575	36%	0%	11%	1%	7%	4%	11%	11%	1%	1%	1%	0%	1%	10%	4%	0%	100%	0.1165184	2.5438244	0.0091758	0.2003262

Note: (i): Tunnel name is based on Portal & top opening of underpass in EIA of Road Works in West Kowloon.

Note: Emission rate is calculated by emission factor provided by Vehicular Emission Control Section of EPD provided the vehicle fleet average emission factors for pollutants mulitplied by traffic flow of each roads.

Scenario 4

max

					Calculated by the formula shown (extracted from the approved EIA of Road Works at West Kowloon)		Volume source - calculated by number of portal/opening involved		Area source - calculated by emission rate divided by area				
					Emission Rate - Portal/ Opening (g/s)		Emission Rate - Portal/ Opening (g/s) - Volume		Emission Rate - Portal/ Opening (g/m2-s) - Area source				
			Portal/ opening ID.	Source Type	PM	NOx	PM	NOx	PM	NOx	(Area)	Formula from Scenario	Emission calculation formula (Extracted from the approved EIA of Road Works at West Kowloon)
53.076	0.687		A	Area	0.00039845	0.0050173	–	–	8.1117E-07	1.0214E-05	491.2	1	0.687 x Tunnel Section A
80.935	0.873		B	Area	0.00204422	0.0257411	–	–	5.979E-06	7.5288E-05	341.9	1	0.873 x ((1 - 0.687) x Tunnel Section A + 1 x Tunnel Section B)
32.646	0.435		CE	Area	0.00122081	0.0149011	–	–	1.9216E-06	2.3455E-05	635.3	1	0.435 x Tunnel Section C + 0.435 x (1 - 0.873) x (1 - 0.687) x Tunnel Section A + 0.435 x (1 - 0.873) x Tunnel Section B + 0.435 x Tunnel Section E
			D1-D7		0.00205946	0.025933	0.00019614	0.00246981	–	–	–		
			D8-D14	Volume			9.8069E-05	0.0012349	–	–	–	1	(1 - 0.435) x Tunnel Section C + (1 - 0.435) x (1 - 0.873) x (1 - 0.687) x Tunnel Section A + (1 - 0.435) x (1 - 0.873) x Tunnel Section B + (1 - 0.435) x Tun
30	0.400		F	Area	0.0010939	0.0130491	–	–	3.942E-06	4.7024E-05	277.5	1	0.4 x (1 - 0.435) x Tunnel Section E + 0.4 x Tunnel Section F
			I1-I4		0.01085485	0.1206861	0.00180914	0.02011436	–	–	–	1	1 x Tunnel Section I + 1 x Tunnel Section G + 1 x Tunnel Section H + 0.14 x Tunnel Section K + (1 - 0.612) x 0.38 x Tunnel SectionO + (1 - 0.4) x (1 - 0.435) x
			I5-I8	Volume			0.00090457	0.01005718	–	–	–		Tunnel Section E + (1 - 0.4) x Tunnel Section F + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+ Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel
45.868	0.612		JKO1	Area	0.00386827	0.0410154	–	–	2.5075E-06	2.6587E-05	1542.7	1	0.612 x Tunnel Section J + 0.612 x (1 - 0.14) x Tunnel Section K + 0.612 x Tunnel Section O
			L1-L5		0.00165872	0.0197723	0.00022116	0.0026363 1	–	–	–		1 x Tunnel Section L + (1 - 0.612) x 0.24 x Tunnel Section J + (1 - 0.612) x 0.62 x Tunnel Section O + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+
			L6-L10	Volume			0.00011058	0.00131815	–	–	–	1	Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P
			M1-M4		0.0006471	0.0077479	0.00010785	0.00129132	–	–	–		
			M5-M8	Volume			5.3925E-05	0.00064566	–	–	–	1	0.5 x (Tunnel Section M + Tunnel Section N)
			N1-N4		0.0006471	0.0077479	0.00010785	0.00129132	–	–	–		
			N5-N8	Volume			5.3925E-05	0.00064566	–	–	–	1	0.5 x (Tunnel Section M + Tunnel Section N)
			P1-P4		0.0019809	0.0207994	0.00033015	0.00346656	–	–	–		1 x Tunnel Section P + (1 - 0.612) x 0.76 x Tunnel Section J + (1 - 0.612) x 0.86 x Tunnel Section K + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+
			P5-P8	Volume			0.00016507	0.00173328	–	–	–	1	Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P
			W1-W8		0.05144254	1.3212093	0.00428688	0.11010077	–	–	–		
			W9-W16	Volume			0.00214344	0.05505039	–	–	–	1	1 x Tunnel W
			701-710		0.00917582	0.2003262	0.00061172	0.01335508	–	–	–	1	
			711-720	Volume			0.00030586	0.00667754	–	–	–	–	1 x Tunnel X
			BaseA	Volume	0.00220282	0.021161	0.00220282	0.02116099					1/3 x Basement roads A,B,C
	% of Serving Rd		BaseC		0.00220282	0.021161	0.00220282	0.02116099					1/3 x Basement roads A,B,C
		Out of 500m	801-820	Volume			–	–	–	–	–	1	1 x Tunnel Y
		Out of 500m	901-903				–	–	–	–	–		1 x Tunnel Z
		Out of 500m	904-906	Volume			–	–	–	–	–	1	
		Out of 500m	V1	Point								from 1-4	–

Appendix 3.18d - Emission Rates of Portal, Top Openings and Ventilation Exhaust (Hr23-00)

Remarks (Tunnel name - Portal & top opening of underpass in EIA of Rd Works in WK)	WKCD section no.	Road name	Bound	Road Type	Length (m)	Total (veh/hr)	Hr 23-00 (2015 EIA_19-12-2011.xls) PC	taxi	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	Total	Rate (g/km-) PM	NOx	Emission Rate (g/s) PM	NOx
A(i)	73	Lin Cheung Rd (underpass)	Northbound	3	73	300	53%	2%	22%	0%	3%	2%	5%	5%	2%	2%	2%	0%	2%	2%	0%	0%	100%	0.0933621	1.1916912	0.0005680	0.0072495
B(i)	73	Lin Cheung Rd (underpass)	Northbound	3	272	300	53%	2%	22%	0%	3%	2%	5%	5%	2%	2%	2%	0%	2%	2%	0%	0%	100%	0.0933621	1.1916912	0.0021162	0.0270117
C(i)	73	Lin Cheung Rd (underpass)	Northbound	3	110	300	53%	2%	22%	0%	3%	2%	5%	5%	2%	2%	2%	0%	2%	2%	0%	0%	100%	0.0933621	1.1916912	0.0008556	0.0109238
D(i)	73	Lin Cheung Rd (underpass)	Northbound	3	176	300	53%	2%	22%	0%	3%	2%	5%	5%	2%	2%	2%	0%	2%	2%	0%	0%	100%	0.0933621	1.1916912	0.0013693	0.0174781
E(i)	72	Lin Cheung Rd (underpass)	Southbound	3	155	425	56%	1%	24%	0%	2%	1%	5%	4%	1%	1%	1%	0%	1%	1%	0%	1%	100%	0.0887885	1.0621039	0.0016247	0.0194350
F(i)	72	Lin Cheung Rd (depressed)	Southbound	3	172	425	56%	1%	24%	0%	2%	1%	5%	4%	1%	1%	1%	0%	1%	1%	0%	1%	100%	0.0887885	1.0621039	0.0018029	0.0215666
G(i)	118	Lin Cheung Rd (depressed)	Southbound	3	121	405	54%	1%	22%	0%	2%	1%	5%	5%	2%	1%	1%	0%	1%	1%	0%	1%	100%	0.0895458	1.0911759	0.0012189	0.0148536
H(i)	119	Austin Rd W (depressed)	Eastbound	3	173	680	35%	1%	48%	0%	1%	1%	4%	2%	1%	1%	1%	0%	1%	1%	1%	1%	100%	0.1335898	1.4637242	0.0043654	0.0478313
I(i)	117	Austin Rd W (depressed)	Eastbound	3	194	245	37%	2%	45%	0%	2%	2%	4%	2%	2%	0%	0%	0%	0%	2%	0%	2%	100%	0.1238049	1.3101097	0.0016346	0.0172971
J(i)	116	Austin Rd W (depressed)	Westbound	3	194	295	32%	2%	41%	0%	2%	2%	3%	2%	2%	0%	10%	0%	0%	2%	2%	2%	100%	0.1314081	1.5991364	0.0020890	0.0254218
K(i)	114	Lin Cheung Rd (depressed)	Southbound	3	95	170	56%	0%	35%	0%	3%	0%	3%	3%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.0948358	0.9132334	0.0004254	0.0040969
L(i)	112	Lin Cheung Rd (depressed)	Northbound	3	95	355	54%	1%	23%	0%	3%	1%	6%	4%	1%	1%	1%	0%	1%	1%	0%	1%	100%	0.0939261	1.1694007	0.0008799	0.0109550
M(i)	84	Lin Cheung Rd	Southbound	3	56	400	54%	1%	25%	0%	4%	1%	4%	5%	1%	1%	1%	0%	1%	1%	0%	0%	100%	0.0918391	1.0991535	0.0005714	0.0068392
N(i)	77	Lin Cheung Rd	Northbound	3	56	545	54%	1%	23%	0%	3%	2%	6%	5%	2%	1%	1%	0%	2%	1%	0%	1%	100%	0.0958762	1.1629589	0.0008128	0.0098593
O(i)	111	Austin Rd W (depressed)	Eastbound	3	52	610	35%	1%	46%	0%	2%	2%	3%	3%	1%	1%	1%	0%	1%	2%	1%	2%	100%	0.1287058	1.4387418	0.0011340	0.0126769
P(i)	110	Austin Rd W (depressed)	Westbound	3	52	330	32%	2%	47%	0%	2%	2%	5%	2%	2%	2%	2%	0%	2%	2%	2%	2%	100%	0.1374171	1.6234948	0.0006550	0.0077387
W(i)	98	West Kowloon Highway (WKH)	Northbound	2	1970	1170	56%	0%	15%	0%	3%	2%	5%	4%	3%	2%	2%	0%	4%	2%	3%	0%	100%	0.0544161	1.3969034	0.0348399	0.8943674
	A	Internal Rd A	Bothbound	4	404	175	43%	0%	29%	0%	3%	0%	3%	3%	0%	0%	20%	0%	0%	0%	0%	0%	100%	0.1597945	1.5484876	0.0031382	0.0304106
	B	Internal Rd B	Bothbound	4	361	285	39%	0%	26%	0%	4%	0%	2%	4%	2%	2%	23%	0%	0%	0%	0%	0%	100%	0.1588280	1.5535335	0.0045392	0.0443987
	C	Internal Rd C	Bothbound	4	521	140	29%	0%	18%	0%	4%	0%	0%	4%	0%	0%	46%	0%	0%	0%	0%	0%	100%	0.2034716	2.0812462	0.0041226	0.0421684
X(i)	144	Reprovision of Gascoigne Rd Flyover	Westbound	3	180	1265	35%	0%	11%	1%	7%	4%	11%	11%	2%	1%	1%	0%	0%	10%	4%	0%	100%	0.1142516	2.4953576	0.0072264	0.1578314

Note: (i): Tunnel name is based on Portal & top opening of underpass in EIA of Road Works in West Kowloon.

Note: Emission rate is calculated by emission factor provided by Vehicular Emission Control Section of EPD provided the vehicle fleet average emission factors for pollutants mulitplied by traffic flow of each roads.

Scenario 4

max

						Calculated by the formula shown (extracted from the approved EIA of Road Works at West Kowloon) Emission Rate - Portal/ Opening (g/s)		Volume source - calculated by number of portal/opening involved Emission Rate - Portal/ Opening (g/s) - Volume		Area source - calculated by emission rate divided by area Emission Rate - Portal/ Opening (g/m2-s) - Area source				
			Portal/ opening ID.	Source Type		PM	NOx	PM	NOx	PM	NOx	(Area)	Formula from Scenario	Emission calculation formula (Extracted from the approved EIA of Road Works at West Kowloon)
53.076	0.687		A	Area		0.00039028	0.0049816	–	–	7.9455E-07	1.0142E-05	491.2	1	0.687 x Tunnel Section A
80.935	0.873		B	Area		0.00200233	0.0255581	–	–	5.8565E-06	7.4753E-05	341.9	1	0.873 x ((1 - 0.687) x Tunnel Section A + 1 x Tunnel Section B)
32.646	0.435		CE	Area		0.00120663	0.0148345	–	–	1.8993E-06	2.335E-05	635.3	1	0.435 x Tunnel Section C + 0.435 x (1 - 0.873) x (1 - 0.687) x Tunnel Section A + 0.435 x (1 - 0.873) x Tunnel Section B + 0.435 x Tunnel Section E
			D1-D7			0.00201725	0.0257486	0.00019212	0.00245225	–	–	–		
			D8-D14	Volume				9.606E-05	0.00122612	–	–	–	1	(1 - 0.435) x Tunnel Section C + (1 - 0.435) x (1 - 0.873) x (1 - 0.687) x Tunnel Section A + (1 - 0.435) x (1 - 0.873) x Tunnel Section B + (1 - 0.435) x Tun
30	0.400		F	Area		0.00108816	0.0130168	–	–	3.9213E-06	4.6907E-05	277.5	1	0.4 x (1 - 0.435) x Tunnel Section E + 0.4 x Tunnel Section F
			I1-I4			0.00948061	0.1065095	0.0015801	0.01775159	–	–	–	1	1 x Tunnel Section I + 1 x Tunnel Section G + 1 x Tunnel Section H + 0.14 x Tunnel Section K + (1 - 0.612) x 0.38 x Tunnel SectionO + (1 - 0.4) x (1 - 0.435) x
			I5-I8	Volume				0.00079005	0.00887579	–	–	–		Tunnel Section E + (1 - 0.4) x Tunnel Section F + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+ Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel
45.868	0.612		JKO1	Area		0.00460041	0.0493017	–	–	2.9821E-06	3.1958E-05	1542.7	1	0.612 x Tunnel Section J + 0.612 x (1 - 0.14) x Tunnel Section K + 0.612 x Tunnel Section O
			L1-L5			0.00193095	0.0230182	0.00025746	0.00306909	–	–	–		1 x Tunnel Section L + (1 - 0.612) x 0.24 x Tunnel Section J + (1 - 0.612) x 0.62 x Tunnel Section O + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+
			L6-L10	Volume				0.00012873	0.00153455	–	–	–	1	Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P
			M1-M4			0.00069213	0.0083492	0.00011536	0.00139154	–	–	–		
			M5-M8	Volume				5.7678E-05	0.00069577	–	–	–	1	0.5 x (Tunnel Section M + Tunnel Section N)
			N1-N4			0.00069213	0.0083492	0.00011536	0.00139154	–	–	–		
			N5-N8	Volume				5.7678E-05	0.00069577	–	–	–	1	0.5 x (Tunnel Section M + Tunnel Section N)
			P1-P4			0.00195595	0.0205595	0.00032599	0.00342659	–	–	–		1 x Tunnel Section P + (1 - 0.612) x 0.76 x Tunnel Section J + (1 - 0.612) x 0.86 x Tunnel Section K + (1 - 0.612) x (1/3 x (Tunnel Section Internal Rd A+
			P5-P8	Volume				0.000163	0.00171329	–	–	–	1	Internal Rd B+ Internal Rd C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P
			W1-W8			0.0348399	0.8943674	0.00290332	0.07453062	–	–	–		
			W9-W16	Volume				0.00145166	0.03726531	–	–	–	1	1 x Tunnel W
			701-710			0.00722642	0.1578314	0.00048176	0.01052209	–	–	–	1	
			711-720	Volume				0.00024088	0.00526105	–	–	–	–	1 x Tunnel X
			BaseA	Volume		0.00393331	0.0389925	0.00393331	0.03899254					1/3 x Basement roads A,B,C
	% of Serving Rd		BaseC			0.00393331	0.0389925	0.00393331	0.03899254					1/3 x Basement roads A,B,C
		Out of 500m	801-820	Volume				–	–	–	–	–	1	1 x Tunnel Y
		Out of 500m	901-903					–	–	–	–	–		1 x Tunnel Z
		Out of 500m	904-906	Volume				–	–	–	–	–	1	
		Out of 500m	V1	Point									from 1-4	–