

Travelling Emission within Proposed Project

Methodology

1. The ultimate building design is depended on the design-and-built contractor and therefore it is assumed that the parking space and vehicle repair/ testing workshop are designed with natural ventilation through louveres at sidewalls. Therefore, the emission is assumed to be released as volume source through each opening in proportion to the opening area.
2. Total emission within the depot is estimated by Emfac mode of EMFAC-HK V2.6.0 accompanied the following assumptions:
 - Combined diurnal traffic flow provided by the HKPF, EMSD, FEHD and GL
 - Default exhaust technology fractions in EMFAC-HK for various vehicles travelling within the depot
 - Travelling speed of 5 kph for all vehicles
 - Longest travelling distance of 1000 m for all vehicles
 - 1 cold start for each trip per vehicle
3. Total vehicular emission due to travelling is estimated as g/hour in accordance with the provided hourly traffic data. Details are shown in **Annex A**.
4. There are 45 openings in total provided at sidewalls. Emission is assumed to be diffused through these openings. Detailed area of each openings as well as their x- and y-coordinates are presented in **Annex B**, whilst the location of volume sources at each floor is shown in **Figure 4-3**. Detailed calculation of each volume sources are also shown in **Annex B**.

Scen: 2018 with Project

Road ID	Time	Road Type	Travelling Speed (kph)	Vehicle Breakdown															NOx E.F. (g/VKT)	PM10 E.F. (g/VKT)	PM2.5 E.F. (g/VKT)	Traveling Distance (m)	NOx E.M (g/hr)	PM10E.M (g/hr)	PM2.5 E.M (g/hr)	NOx E.M (g/s)	PM10 E.M (g/s)	PM2.5 E.M (g/s)	
				01 - Private Cars (PC)	03 - Taxi	04 - Light Goods Vehicles<= 2.5t	05 - Lt Goods Vehicles 2.5-3.5t	06 - Light Goods Vehicles> 3.5t	07 - Heavy Goods Vehicles< =15t	08 - Heavy Goods Vehicles >15t	11 - Public Light Buses	12 - Private Light Bus <=3.5t	13 - Private Light Bus >3.5t	14 - Non-franchised Bus<=6.4t	15 - Non-franchised Bus 6.4-15t	16 - Non-franchised Bus >15t	17 - Franchised Bus (SD)	18 - Franchised Bus (DD)											19 - Motorcycles (MC)
CWD	Hr1	LD	5	75.0%	0.0%	0.0%	0.0%	25.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.97	0.04	0.04	1000	3.900	0.1626	0.1499	0.0011	0.000045	0.000042
CWD	Hr2	LD	5	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.80	0.05	0.04	1000	0.802	0.0507	0.0401	0.0002	0.000014	0.000011
CWD	Hr3	LD	5	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	1000	0.000	0.0000	0.0000	0.0000	0.000000	0.000000
CWD	Hr4	LD	5	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	1000	0.000	0.0000	0.0000	0.0000	0.000000	0.000000
CWD	Hr5	LD	5	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.80	0.05	0.04	1000	1.598	0.1014	0.0802	0.0004	0.000028	0.000022
CWD	Hr6	LD	5	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	88.9%	0.0%	0.0%	11.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	6.97	0.41	0.38	1000	62.704	3.6730	3.3791	0.0174	0.001020	0.000939
CWD	Hr7	LD	5	33.3%	0.0%	0.0%	0.0%	4.8%	0.0%	9.5%	0.0%	0.0%	47.6%	0.0%	0.0%	0.0%	0.0%	0.0%	4.8%	2.86	0.08	0.08	1000	60.049	1.7343	1.5892	0.0167	0.000482	0.000441
CWD	Hr8	LD	5	11.6%	0.0%	0.0%	0.0%	30.2%	0.0%	0.0%	0.0%	0.0%	44.2%	0.0%	0.0%	0.0%	0.0%	0.0%	14.0%	2.94	0.06	0.06	1000	126.372	2.6940	2.4380	0.0351	0.000748	0.000677
CWD	Hr9	LD	5	14.8%	0.0%	0.0%	0.0%	33.3%	0.0%	0.0%	0.0%	0.0%	37.0%	0.0%	0.0%	0.0%	0.0%	0.0%	14.8%	2.74	0.06	0.06	1000	74.107	1.7017	1.5388	0.0206	0.000473	0.000427
CWD	Hr10	LD	5	16.0%	0.0%	0.0%	0.0%	36.0%	0.0%	8.0%	0.0%	0.0%	24.0%	0.0%	0.0%	0.0%	0.0%	0.0%	16.0%	2.93	0.10	0.09	1000	73.327	2.3947	2.1766	0.0204	0.000665	0.000605
CWD	Hr11	LD	5	16.7%	0.0%	0.0%	0.0%	16.7%	0.0%	0.0%	0.0%	0.0%	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	16.7%	2.69	0.05	0.05	1000	64.524	1.3172	1.1852	0.0179	0.000366	0.000329
CWD	Hr12	LD	5	13.8%	0.0%	0.0%	0.0%	27.6%	0.0%	27.6%	0.0%	0.0%	17.2%	0.0%	0.0%	0.0%	0.0%	0.0%	13.8%	3.74	0.17	0.16	1000	108.345	4.9586	4.5355	0.0301	0.001377	0.001260
CWD	Hr13	LD	5	12.0%	0.0%	0.0%	0.0%	28.0%	0.0%	16.0%	0.0%	0.0%	36.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.0%	3.61	0.13	0.11	1000	90.167	3.1396	2.8748	0.0250	0.000872	0.000799
CWD	Hr14	LD	5	7.1%	0.0%	0.0%	0.0%	21.4%	0.0%	17.9%	0.0%	0.0%	42.9%	0.0%	0.0%	0.0%	0.0%	0.0%	10.7%	3.80	0.13	0.12	1000	106.382	3.6822	3.3672	0.0296	0.001023	0.000935
CWD	Hr15	LD	5	11.1%	0.0%	0.0%	0.0%	33.3%	0.0%	16.7%	0.0%	0.0%	27.8%	0.0%	0.0%	0.0%	0.0%	0.0%	11.1%	3.54	0.13	0.12	1000	127.347	4.7110	4.3072	0.0354	0.001309	0.001196
CWD	Hr16	LD	5	11.1%	0.0%	0.0%	0.0%	29.6%	0.0%	0.0%	0.0%	0.0%	48.1%	0.0%	0.0%	0.0%	0.0%	0.0%	11.1%	2.99	0.06	0.06	1000	80.717	1.6904	1.5347	0.0224	0.000470	0.000426
CWD	Hr17	LD	5	10.0%	0.0%	0.0%	0.0%	35.0%	0.0%	0.0%	0.0%	0.0%	25.0%	0.0%	0.0%	0.0%	0.0%	0.0%	30.0%	2.43	0.06	0.06	1000	48.566	1.2989	1.1553	0.0135	0.000361	0.000321
CWD	Hr18	LD	5	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	57.1%	0.0%	0.0%	0.0%	0.0%	0.0%	42.9%	2.57	0.05	0.05	1000	17.957	0.3641	0.3151	0.0050	0.000101	0.000088
CWD	Hr19	LD	5	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.96	0.05	0.05	1000	7.920	0.1060	0.0974	0.0022	0.000029	0.000027
CWD	Hr20	LD	5	0.0%	0.0%	0.0%	0.0%	22.2%	0.0%	0.0%	0.0%	0.0%	77.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.84	0.06	0.06	1000	34.544	0.5672	0.5213	0.0096	0.000158	0.000145
CWD	Hr21	LD	5	11.8%	0.0%	0.0%	0.0%	17.6%	0.0%	17.6%	0.0%	0.0%	52.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.00	0.13	0.12	1000	68.083	2.1718	1.9976	0.0189	0.000603	0.000555
CWD	Hr22	LD	5	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	7.29	0.45	0.42	1000	14.571	0.9050	0.8326	0.0040	0.000251	0.000231
CWD	Hr23	LD	5	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	50.0%	2.36	0.05	0.04	1000	4.721	0.1037	0.0888	0.0013	0.000029	0.000025
CWD	Hr24	LD	5	40.0%	0.0%	0.0%	0.0%	20.0%	0.0%	0.0%	0.0%	0.0%	40.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.32	0.05	0.05	1000	11.620	0.2471	0.2274	0.0032	0.000069	0.000063

ID	X-Coordinate	Y-Coordinate	Elevation (mPD)	Release Height (m)	Initial Lateral Dimension (m)	Initial Vertical Dimension (m)	Max. Emission Rate (g/s)			Opening Width (m)	Adjacent Building Height (m)	Opening Area (m2)	Bottom (mPD)	Center (mPD)	Height (m)	
					Sigma Y	Sigma Z	NOx	RSP	FSP							
T01	842974.0552	814786.2832	5	2	4.47	18.60	0.000755	0.000029	0.000027	9.60	40	38.40	5	7	4	
T02	843044.0772	814727.8546	5	3	6.19	18.60	0.001046	0.000041	0.000037	13.30	40	53.22	6	8	4	
T03	843066.2606	814758.5471	5	2	3.26	18.60	0.000550	0.000021	0.000020	7.00	40	28.00	5	7	4	
T04	842982.5233	814812.0004	5	11	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	14	16	4	
T05	842975.4551	814791.0877	5	11	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	14	16	4	
T06	842972.3573	814781.3695	5	11	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	14	16	4	
T07	842966.5771	814763.8019	5	11	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	14	16	4	
T08	842972.8701	814739.3353	5	11	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	14	16	4	
T09	842982.2538	814731.1505	5	11	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	14	16	4	
T10	842994.4653	814720.4907	5	11	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	14	16	4	
T11	843003.0149	814713.0394	5	11	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	14	16	4	
T12	843042.6412	814728.5409	5	11	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	14	16	4	
T13	843049.249	814736.2646	5	11	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	14	16	4	
T14	843055.9181	814744.0887	5	11	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	14	16	4	
T15	843066.5254	814756.5297	5	11	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	14	16	4	
T16	842985.7444	814822.0537	5	11	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	14	16	4	
T17	842982.5459	814812.3681	5	17.2	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	20.2	22.2	4	
T18	842975.4484	814790.9463	5	17.2	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	20.2	22.2	4	
T19	842972.2364	814781.2652	5	17.2	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	20.2	22.2	4	
T20	842967.2472	814766.251	5	17.2	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	20.2	22.2	4	
T21	842975.2881	814736.9234	5	17.2	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	20.2	22.2	4	
T22	843052.5014	814740.1902	5	17.2	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	20.2	22.2	4	
T23	843067.486	814757.6691	5	17.2	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	20.2	22.2	4	
T24	842985.6282	814821.6287	5	24.9	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	27.9	29.9	4	
T25	842982.3616	814811.9509	5	24.9	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	27.9	29.9	4	
T26	842975.5476	814791.8053	5	24.9	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	27.9	29.9	4	
T27	842972.0151	814781.3879	5	24.9	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	27.9	29.9	4	
T28	842966.0472	814763.8162	5	24.9	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	27.9	29.9	4	
T29	842972.1877	814739.3133	5	24.9	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	27.9	29.9	4	
T30	842981.5217	814731.0719	5	24.9	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	27.9	29.9	4	
T31	842993.6641	814720.3334	5	24.9	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	27.9	29.9	4	
T32	843002.1706	814712.8328	5	24.9	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	27.9	29.9	4	
T33	843044.4418	814731.0341	5	24.9	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	27.9	29.9	4	
T34	843051.3091	814738.977	5	24.9	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	27.9	29.9	4	
T35	843065.9536	814755.8626	5	24.9	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	27.9	29.9	4	
T36	842985.6666	814821.9557	5	31.1	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	34.1	36.1	4	
T37	842980.1878	814805.5593	5	31.1	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	34.1	36.1	4	
T38	842972.0772	814781.398	5	31.1	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	34.1	36.1	4	
T39	842966.1583	814763.8061	5	31.1	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	34.1	36.1	4	
T40	842972.3881	814739.3268	5	31.1	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	34.1	36.1	4	
T41	842981.7459	814731.1158	5	31.1	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	34.1	36.1	4	
T42	842993.9308	814720.4222	5	31.1	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	34.1	36.1	4	
T43	843003.2886	814712.2112	5	31.1	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	34.1	36.1	4	
T44	843044.6624	814731.2697	5	31.1	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	34.1	36.1	4	
T45	843051.5056	814739.2334	5	31.1	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	34.1	36.1	4	
Total							0.035374	0.001377	0.001260							

Hour	NOx Operation Factor	RSP Operation Factor	FSP Operation Factor
0:00	0.031	0.033	0.033
1:00	0.006	0.010	0.009
2:00	0.000	0.000	0.000
3:00	0.000	0.000	0.000
4:00	0.013	0.020	0.018
5:00	0.492	0.741	0.745
6:00	0.472	0.350	0.350
7:00	0.992	0.543	0.538
8:00	0.582	0.343	0.339
9:00	0.576	0.483	0.480
10:00	0.507	0.266	0.261
11:00	0.851	1.000	1.000
12:00	0.708	0.633	0.634
13:00	0.835	0.743	0.742
14:00	1.000	0.950	0.950
15:00	0.634	0.341	0.338
16:00	0.381	0.262	0.255
17:00	0.141	0.073	0.069
18:00	0.062	0.021	0.021
19:00	0.271	0.114	0.115
20:00	0.535	0.438	0.440
21:00	0.114	0.183	0.184
22:00	0.037	0.021	0.020
23:00	0.091	0.050	0.050