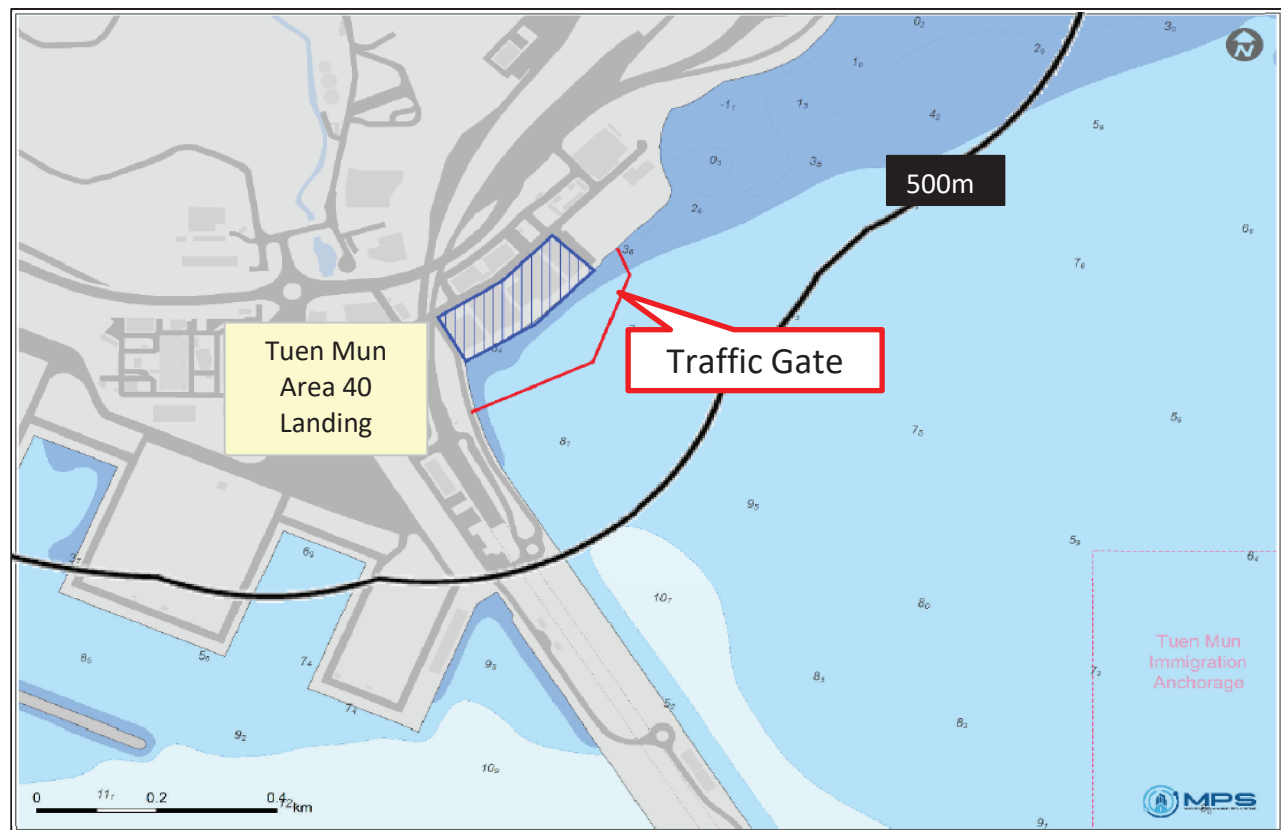


**Marine Traffic Information**

**Assessment Year** 2048  
**Assessed Vessel Type** River Trade Vessels  
**Location** Tuen Mun Area 40 Landing



**Marine Traffic Information from Marine Traffic Consultants**

Location	Monthly Vessel Count for Maneuvering <sup>[1]</sup>	Monthly Vessel Count for Hotelling <sup>[1]</sup>	Travelling Speed (knots) <sup>[2]</sup>	Length of Sailing Route within Assessment Area (m) <sup>[3]</sup>	Hotelling Time (hours) <sup>[2]</sup>
Tuen Mun Area 40 Landing	1,259	630	2	800	4

**Notes**

- [1] Monthly vessel count for maneuvering is provided Marine Traffic Consultant and accepted by Marine Department, and that for hotelling is half of the number for maneuvering.
- [2] Average speed of 2 knots and average hotelling time of 4 hours are provided by Marine Traffic Consultant.
- [3] Possible maximum length of sailing route within assessment area is estimated for conservative assessment.
- [4] As advised by Marine Traffic Consultant, the RTVs at Landing Area 40 include local lighter/barge/cargo junk, local bunker vessel, and tug and tow.

**Marine Emission Inventory during Maneuvering****Total Emission Rate**

Group <sup>[1]</sup>	Vessel Type	Emission Rate per Trip (g/s) <sup>[2]</sup>			Annual No. of Vessel Arrivals in Year 2019 <sup>[3]</sup>	Composite Emission Rate per Trip (g/s) <sup>[4]</sup>		
		NO <sub>x</sub>	RSP	FSP		NO <sub>x</sub>	RSP	FSP
1	Conventional Cargo Vessel	9.86E-02	3.18E-03	3.08E-03	-	9.86E-02	3.18E-03	3.08E-03
2	Dry Bulk Carrier	1.03E-01	3.32E-03	3.22E-03	-	1.03E-01	3.32E-03	3.22E-03
3	Tug	3.30E-01	1.76E-02	1.71E-02	-	3.30E-01	1.76E-02	1.71E-02
4	Chemical Carrier	2.62E-01	1.15E-02	1.11E-02	247	2.64E-01	1.15E-02	1.12E-02
	Gas Carrier	2.65E-01	1.16E-02	1.12E-02	134			
	Oil Tanker	2.65E-01	1.16E-02	1.12E-02	419			
5	Mechanised Lighter/Barge/Cargo Junk	1.17E-01	3.81E-03	3.69E-03	-	1.17E-01	3.81E-03	3.69E-03

**Engine in Operation**

Engine	On (1) or Off (0) <sup>[2]</sup>
ME	1
AE	1

**Notes:**

[1] The vessel type is grouped according to the modelling parameter (i.e. stack height, exit temperature, exit velocity etc). Vessel types with the identical modelling parameters will be grouped.

[2] Main and auxiliary engine are assumed in operation during maneuvering for conservative assessment with reference to Table 3-25 of Study on Marine Vessels Emission Inventory Final Report (HKUST, February 2012). The emission rate per trip considers the emission from the engine in operation as indicated in the table "Engine in Operation", and the calculation is documented in the "Technical Notes on Marine Emission for Pillar Point Area" submitted to EPD.

[3] Marine Traffic Consultant has provided the total number of RTVs but without breakdown into different vessel types. Hence, reference has been made to Marine Department's Vessels Arrivals by Ship Type and Ocean/River ([https://www.mardep.gov.hk/en/fact/pdf/portstat\\_2\\_y\\_a2.pdf](https://www.mardep.gov.hk/en/fact/pdf/portstat_2_y_a2.pdf)). Due to the pandemic situation, there was a significant change in marine traffic from Year 2020 to Year 2022. In view of this, the monthly profile of Year 2019 is considered the most appropriate and therefore adopted and assumed the same for future years.

[4] The emission rate per trip is calculated based on the following equation. Breakdown is provided and documented in "Technical Notes on Marine Emission for Pillar Point Area" submitted to EPD and emission rates are evenly apportioned into point sources in the model as shown in subsequent pages of this Appendix.

*Engine Emission Rate per Trip = (i)Time-in-mode x (ii)Engine Load Factors x (iii) Engine Power x (iv) Emission Factor, where*

(i) Time-in-mode is calculated from the average speed and possible maximum length of sailing route within assessment area provided by Marine Traffic Consultant.

(ii) Engine Load Factors are made reference to Table 4-7, Table 4-10 and Table 3-24 of Study on Marine Vessels Emission Inventory Final Report (HKUST, February 2012).

(iii) The average engine powers are made reference to Table 4-5 and Table 4-6 of the Study on Marine Vessels Emission Inventory Final Report (HKUST, February 2012).

(iv) The emission factor is made reference to Study on Marine Vessels Emission Inventory Final Report (HKUST, February 2012) Table 4-16. Under the Air Pollution Control (Fuel for Vessels) Regulation, all vessels assumed to use MGO due to requirement to fuel switch to compliant fuel (sulphur content <=0.5%) within Hong Kong waters.

## Modelling Parameters

Gate	Group	Source ID	Type	X	Y	Base Elevation	Release Height [1]	Exit Temperature [1]	Exit velocity [1]	Internal diameter [1]	Emission Rate per Trip		
				(m)	(m)	(mpd)	(m)	(K)	(m/s)	(m)	NOx	RSP	FSP
				(g/s)	(g/s)	(g/s)							
Tuen Mun Area 40 Landing	1	LA_RM1_001	POINT	812742.6	825145.3	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_002	POINT	812765.9	825101.5	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_003	POINT	812784.5	825055.1	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_004	POINT	812803.2	825008.7	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_005	POINT	812821.8	824962.3	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_006	POINT	812840.4	824915.9	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_007	POINT	812859.1	824869.5	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_008	POINT	812980.3	825343.0	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_009	POINT	813028.6	825330.0	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_010	POINT	813070.1	825345.4	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_011	POINT	813107.5	825378.6	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_012	POINT	813144.8	825411.9	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_013	POINT	813182.2	825445.1	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_014	POINT	813219.5	825478.3	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_015	POINT	813263.6	825488.6	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_016	POINT	813313.0	825480.7	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_017	POINT	813362.4	825472.9	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_018	POINT	813411.7	825465.0	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_019	POINT	812871.5	825234.7	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_020	POINT	812914.0	825208.4	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_021	POINT	812956.6	825182.1	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_022	POINT	813000.9	825161.0	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_023	POINT	813050.6	825155.6	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_024	POINT	813100.3	825150.2	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_025	POINT	812806.7	825182.0	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_026	POINT	812840.3	825145.1	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_027	POINT	812874.0	825108.1	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_028	POINT	812907.7	825071.1	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_029	POINT	812941.3	825034.2	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_030	POINT	812975.0	824997.2	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_031	POINT	813008.7	824960.2	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_032	POINT	812839.5	825210.7	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_033	POINT	812878.5	825179.5	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_034	POINT	812917.6	825148.2	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_035	POINT	812956.6	825116.9	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_036	POINT	812997.9	825088.9	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_037	POINT	813039.8	825061.6	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_038	POINT	812773.0	825164.0	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_039	POINT	812801.2	825122.9	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_040	POINT	812827.0	825080.1	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_041	POINT	812852.9	825037.3	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_042	POINT	812878.7	824994.5	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_043	POINT	812904.5	824951.7	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_044	POINT	812930.4	824908.9	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_045	POINT	812902.8	825264.1	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_046	POINT	812948.6	825244.1	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_047	POINT	812994.5	825224.2	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_048	POINT	813040.7	825208.6	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_049	POINT	813089.3	825220.4	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05

**Modelling Parameters**

Gate	Group	Source ID	Type	X	Y	Base Elevation	Release Height [1]	Exit Temperature [1]	Exit velocity [1]	Internal diameter [1]	Emission Rate per Trip		
				(m)	(m)	(mpd)	(m)	(K)	(m/s)	(m)	NOx	RSP	FSP
										(g/s)	(g/s)	(g/s)	
Tuen Mun Area 40 Landing	1	LA_RM1_050	POINT	813137.8	825232.4	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_051	POINT	813186.2	825245.1	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_052	POINT	812925.3	825289.7	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_053	POINT	812972.5	825273.4	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_054	POINT	813019.8	825257.2	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_055	POINT	813067.2	825256.9	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_056	POINT	813114.6	825272.8	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_057	POINT	813162.0	825288.6	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_058	POINT	813209.4	825304.5	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_059	POINT	813248.7	825335.0	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_060	POINT	813287.6	825366.3	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_061	POINT	813329.5	825393.5	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_062	POINT	812955.2	825318.7	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_063	POINT	813003.6	825305.9	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_064	POINT	813051.6	825296.1	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_065	POINT	813095.5	825319.9	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_066	POINT	813139.4	825343.8	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_067	POINT	813183.4	825367.7	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_068	POINT	813223.0	825398.1	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_069	POINT	813264.8	825423.0	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_070	POINT	813314.6	825427.5	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	1	LA_RM1_071	POINT	813364.4	825432.1	0	11	555	25	0.8	1.39E-03	4.48E-05	4.34E-05
Tuen Mun Area 40 Landing	2	LA_RM2_001	POINT	812742.6	825145.3	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_002	POINT	812765.9	825101.5	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_003	POINT	812784.5	825055.1	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_004	POINT	812803.2	825008.7	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_005	POINT	812821.8	824962.3	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_006	POINT	812840.4	824915.9	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_007	POINT	812859.1	824869.5	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_008	POINT	812980.3	825343	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_009	POINT	813028.6	825330	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_010	POINT	813070.1	825345.4	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_011	POINT	813107.5	825378.6	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_012	POINT	813144.8	825411.9	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_013	POINT	813182.2	825445.1	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_014	POINT	813219.5	825478.3	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_015	POINT	813263.6	825488.6	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_016	POINT	813313	825480.7	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_017	POINT	813362.4	825472.9	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_018	POINT	813411.7	825465	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_019	POINT	812871.5	825234.7	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_020	POINT	812914	825208.4	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_021	POINT	812956.6	825182.1	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_022	POINT	813000.9	825161	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_023	POINT	813050.6	825155.6	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_024	POINT	813100.3	825150.2	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_025	POINT	812806.7	825182	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_026	POINT	812840.3	825145.1	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_027	POINT	812874	825108.1	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05

Modelling Parameters

Gate	Group	Source ID	Type	X	Y	Base Elevation	Release Height <sup>[1]</sup>	Exit Temperature <sup>[1]</sup>	Exit velocity <sup>[1]</sup>	Internal diameter <sup>[1]</sup>	Emission Rate per Trip		
				(m)	(m)	(mpd)	(m)	(K)	(m/s)	(m)	NOx	RSP	FSP
				(g/s)	(g/s)	(g/s)							
Tuen Mun Area 40 Landing	2	LA_RM2_028	POINT	812907.7	825071.1	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_029	POINT	812941.3	825034.2	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_030	POINT	812975	824997.2	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_031	POINT	813008.7	824960.2	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_032	POINT	812839.5	825210.7	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_033	POINT	812878.5	825179.5	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_034	POINT	812917.6	825148.2	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_035	POINT	812956.6	825116.9	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_036	POINT	812997.9	825088.9	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_037	POINT	813039.8	825061.6	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_038	POINT	812773	825164	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_039	POINT	812801.2	825122.9	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_040	POINT	812827	825080.1	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_041	POINT	812852.9	825037.3	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_042	POINT	812878.7	824994.5	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_043	POINT	812904.5	824951.7	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_044	POINT	812930.4	824908.9	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_045	POINT	812902.8	825264.1	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_046	POINT	812948.6	825244.1	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_047	POINT	812994.5	825224.2	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_048	POINT	813040.7	825208.6	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_049	POINT	813089.3	825220.4	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_050	POINT	813137.8	825232.4	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_051	POINT	813186.2	825245.1	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_052	POINT	812925.3	825289.7	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_053	POINT	812972.5	825273.4	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_054	POINT	813019.8	825257.2	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_055	POINT	813067.2	825256.9	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_056	POINT	813114.6	825272.8	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_057	POINT	813162	825288.6	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_058	POINT	813209.4	825304.5	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_059	POINT	813248.7	825335	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_060	POINT	813287.6	825366.3	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_061	POINT	813329.5	825393.5	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_062	POINT	812955.2	825318.7	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_063	POINT	813003.6	825305.9	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_064	POINT	813051.6	825296.1	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_065	POINT	813095.5	825319.9	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_066	POINT	813139.4	825343.8	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_067	POINT	813183.4	825367.7	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_068	POINT	813223	825398.1	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_069	POINT	813264.8	825423	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_070	POINT	813314.6	825427.5	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	2	LA_RM2_071	POINT	813364.4	825432.1	0	8	555	25	0.8	1.46E-03	4.68E-05	4.53E-05
Tuen Mun Area 40 Landing	3	LA_RM3_001	POINTHOR	812742.6	825145.3	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_002	POINTHOR	812765.9	825101.5	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_003	POINTHOR	812784.5	825055.1	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_004	POINTHOR	812803.2	825008.7	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_005	POINTHOR	812821.8	824962.3	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04

## Modelling Parameters

Gate	Group	Source ID	Type	X	Y	Base Elevation	Release Height [1]	Exit Temperature [1]	Exit velocity [1]	Internal diameter [1]	Emission Rate per Trip		
				(m)	(m)	(mpd)	(m)	(K)	(m/s)	(m)	NOx	RSP	FSP
				(g/s)	(g/s)	(g/s)							
Tuen Mun Area 40 Landing	3	LA_RM3_006	POINTHOR	812840.4	824915.9	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_007	POINTHOR	812859.1	824869.5	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_008	POINTHOR	812980.3	825343	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_009	POINTHOR	813028.6	825330	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_010	POINTHOR	813070.1	825345.4	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_011	POINTHOR	813107.5	825378.6	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_012	POINTHOR	813144.8	825411.9	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_013	POINTHOR	813182.2	825445.1	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_014	POINTHOR	813219.5	825478.3	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_015	POINTHOR	813263.6	825488.6	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_016	POINTHOR	813313	825480.7	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_017	POINTHOR	813362.4	825472.9	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_018	POINTHOR	813411.7	825465	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_019	POINTHOR	812871.5	825234.7	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_020	POINTHOR	812914	825208.4	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_021	POINTHOR	812956.6	825182.1	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_022	POINTHOR	813000.9	825161	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_023	POINTHOR	813050.6	825155.6	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_024	POINTHOR	813100.3	825150.2	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_025	POINTHOR	812806.7	825182	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_026	POINTHOR	812840.3	825145.1	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_027	POINTHOR	812874	825108.1	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_028	POINTHOR	812907.7	825071.1	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_029	POINTHOR	812941.3	825034.2	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_030	POINTHOR	812975	824997.2	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_031	POINTHOR	813008.7	824960.2	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_032	POINTHOR	812839.5	825210.7	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_033	POINTHOR	812878.5	825179.5	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_034	POINTHOR	812917.6	825148.2	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_035	POINTHOR	812956.6	825116.9	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_036	POINTHOR	812997.9	825088.9	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_037	POINTHOR	813039.8	825061.6	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_038	POINTHOR	812773	825164	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_039	POINTHOR	812801.2	825122.9	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_040	POINTHOR	812827	825080.1	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_041	POINTHOR	812852.9	825037.3	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_042	POINTHOR	812878.7	824994.5	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_043	POINTHOR	812904.5	824951.7	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_044	POINTHOR	812930.4	824908.9	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_045	POINTHOR	812902.8	825264.1	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_046	POINTHOR	812948.6	825244.1	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_047	POINTHOR	812994.5	825224.2	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_048	POINTHOR	813040.7	825208.6	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_049	POINTHOR	813089.3	825220.4	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_050	POINTHOR	813137.8	825232.4	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_051	POINTHOR	813186.2	825245.1	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_052	POINTHOR	812925.3	825289.7	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_053	POINTHOR	812972.5	825273.4	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_054	POINTHOR	813019.8	825257.2	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04

**Modelling Parameters**

Gate	Group	Source ID	Type	X	Y	Base Elevation	Release Height <sup>[1]</sup>	Exit Temperature <sup>[1]</sup>	Exit velocity <sup>[1]</sup>	Internal diameter <sup>[1]</sup>	Emission Rate per Trip		
				(m)	(m)	(mpd)	(m)	(K)	(m/s)	(m)	NOx	RSP	FSP
				(g/s)	(g/s)	(g/s)							
Tuen Mun Area 40 Landing	3	LA_RM3_055	POINTHOR	813067.2	825256.9	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_056	POINTHOR	813114.6	825272.8	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_057	POINTHOR	813162	825288.6	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_058	POINTHOR	813209.4	825304.5	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_059	POINTHOR	813248.7	825335	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_060	POINTHOR	813287.6	825366.3	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_061	POINTHOR	813329.5	825393.5	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_062	POINTHOR	812955.2	825318.7	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_063	POINTHOR	813003.6	825305.9	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_064	POINTHOR	813051.6	825296.1	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_065	POINTHOR	813095.5	825319.9	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_066	POINTHOR	813139.4	825343.8	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_067	POINTHOR	813183.4	825367.7	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_068	POINTHOR	813223	825398.1	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_069	POINTHOR	813264.8	825423	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_070	POINTHOR	813314.6	825427.5	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	3	LA_RM3_071	POINTHOR	813364.4	825432.1	0	4	694.7	8	0.2	4.65E-03	2.48E-04	2.41E-04
Tuen Mun Area 40 Landing	4	LA_RM4_001	POINT	812742.6	825145.3	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_002	POINT	812765.9	825101.5	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_003	POINT	812784.5	825055.1	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_004	POINT	812803.2	825008.7	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_005	POINT	812821.8	824962.3	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_006	POINT	812840.4	824915.9	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_007	POINT	812859.1	824869.5	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_008	POINT	812980.3	825343	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_009	POINT	813028.6	825330	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_010	POINT	813070.1	825345.4	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_011	POINT	813107.5	825378.6	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_012	POINT	813144.8	825411.9	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_013	POINT	813182.2	825445.1	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_014	POINT	813219.5	825478.3	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_015	POINT	813263.6	825488.6	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_016	POINT	813313	825480.7	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_017	POINT	813362.4	825472.9	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_018	POINT	813411.7	825465	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_019	POINT	812871.5	825234.7	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_020	POINT	812914	825208.4	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_021	POINT	812956.6	825182.1	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_022	POINT	813000.9	825161	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_023	POINT	813050.6	825155.6	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_024	POINT	813100.3	825150.2	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_025	POINT	812806.7	825182	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_026	POINT	812840.3	825145.1	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_027	POINT	812874	825108.1	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_028	POINT	812907.7	825071.1	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_029	POINT	812941.3	825034.2	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_030	POINT	812975	824997.2	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_031	POINT	813008.7	824960.2	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_032	POINT	812839.5	825210.7	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04

## Modelling Parameters

Gate	Group	Source ID	Type	X	Y	Base Elevation	Release Height <sup>[1]</sup>	Exit Temperature <sup>[1]</sup>	Exit velocity <sup>[1]</sup>	Internal diameter <sup>[1]</sup>	Emission Rate per Trip		
				(m)	(m)	(mpd)	(m)	(K)	(m/s)	(m)	NOx	RSP	FSP
											(g/s)	(g/s)	(g/s)
Tuen Mun Area 40 Landing	4	LA_RM4_033	POINT	812878.5	825179.5	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_034	POINT	812917.6	825148.2	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_035	POINT	812956.6	825116.9	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_036	POINT	812997.9	825088.9	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_037	POINT	813039.8	825061.6	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_038	POINT	812773	825164	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_039	POINT	812801.2	825122.9	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_040	POINT	812827	825080.1	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_041	POINT	812852.9	825037.3	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_042	POINT	812878.7	824994.5	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_043	POINT	812904.5	824951.7	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_044	POINT	812930.4	824908.9	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_045	POINT	812902.8	825264.1	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_046	POINT	812948.6	825244.1	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_047	POINT	812994.5	825224.2	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_048	POINT	813040.7	825208.6	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_049	POINT	813089.3	825220.4	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_050	POINT	813137.8	825232.4	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_051	POINT	813186.2	825245.1	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_052	POINT	812925.3	825289.7	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_053	POINT	812972.5	825273.4	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_054	POINT	813019.8	825257.2	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_055	POINT	813067.2	825256.9	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_056	POINT	813114.6	825272.8	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_057	POINT	813162	825288.6	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_058	POINT	813209.4	825304.5	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_059	POINT	813248.7	825335	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_060	POINT	813287.6	825366.3	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_061	POINT	813329.5	825393.5	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_062	POINT	812955.2	825318.7	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_063	POINT	813003.6	825305.9	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_064	POINT	813051.6	825296.1	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_065	POINT	813095.5	825319.9	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_066	POINT	813139.4	825343.8	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_067	POINT	813183.4	825367.7	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_068	POINT	813223	825398.1	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_069	POINT	813264.8	825423	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_070	POINT	813314.6	825427.5	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	4	LA_RM4_071	POINT	813364.4	825432.1	0	20	555	25	0.8	3.72E-03	1.63E-04	1.58E-04
Tuen Mun Area 40 Landing	5	LA_RM5_001	POINT	812742.6	825145.3	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_002	POINT	812765.9	825101.5	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_003	POINT	812784.5	825055.1	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_004	POINT	812803.2	825008.7	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_005	POINT	812821.8	824962.3	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_006	POINT	812840.4	824915.9	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_007	POINT	812859.1	824869.5	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_008	POINT	812980.3	825343	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_009	POINT	813028.6	825330	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_010	POINT	813070.1	825345.4	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05



## Modelling Parameters

Gate	Group	Source ID	Type	X	Y	Base Elevation	Release Height <sup>[1]</sup>	Exit Temperature <sup>[1]</sup>	Exit velocity <sup>[1]</sup>	Internal diameter <sup>[1]</sup>	Emission Rate per Trip		
				(m)	(m)	(mpd)	(m)	(K)	(m/s)	(m)	NOx	RSP	FSP
											(g/s)	(g/s)	(g/s)
Tuen Mun Area 40 Landing	5	LA_RM5_011	POINT	813107.5	825378.6	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_012	POINT	813144.8	825411.9	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_013	POINT	813182.2	825445.1	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_014	POINT	813219.5	825478.3	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_015	POINT	813263.6	825488.6	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_016	POINT	813313	825480.7	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_017	POINT	813362.4	825472.9	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_018	POINT	813411.7	825465	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_019	POINT	812871.5	825234.7	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_020	POINT	812914	825208.4	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_021	POINT	812956.6	825182.1	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_022	POINT	813000.9	825161	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_023	POINT	813050.6	825155.6	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_024	POINT	813100.3	825150.2	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_025	POINT	812806.7	825182	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_026	POINT	812840.3	825145.1	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_027	POINT	812874	825108.1	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_028	POINT	812907.7	825071.1	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_029	POINT	812941.3	825034.2	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_030	POINT	812975	824997.2	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_031	POINT	813008.7	824960.2	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_032	POINT	812839.5	825210.7	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_033	POINT	812878.5	825179.5	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_034	POINT	812917.6	825148.2	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_035	POINT	812956.6	825116.9	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_036	POINT	812997.9	825088.9	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_037	POINT	813039.8	825061.6	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_038	POINT	812773	825164	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_039	POINT	812801.2	825122.9	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_040	POINT	812827	825080.1	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_041	POINT	812852.9	825037.3	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_042	POINT	812878.7	824994.5	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_043	POINT	812904.5	824951.7	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_044	POINT	812930.4	824908.9	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_045	POINT	812902.8	825264.1	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_046	POINT	812948.6	825244.1	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_047	POINT	812994.5	825224.2	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_048	POINT	813040.7	825208.6	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_049	POINT	813089.3	825220.4	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_050	POINT	813137.8	825232.4	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_051	POINT	813186.2	825245.1	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_052	POINT	812925.3	825289.7	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_053	POINT	812972.5	825273.4	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_054	POINT	813019.8	825257.2	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_055	POINT	813067.2	825256.9	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_056	POINT	813114.6	825272.8	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_057	POINT	813162	825288.6	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_058	POINT	813209.4	825304.5	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_059	POINT	813248.7	825335	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05

**Modelling Parameters**

Gate	Group	Source ID	Type	X	Y	Base Elevation	Release Height [1]	Exit Temperature [1]	Exit velocity [1]	Internal diameter [1]	Emission Rate per Trip		
				(m)	(m)						(mpd)	(m)	(K)
Tuen Mun Area 40 Landing	5	LA_RM5_060	POINT	813287.6	825366.3	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_061	POINT	813329.5	825393.5	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_062	POINT	812955.2	825318.7	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_063	POINT	813003.6	825305.9	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_064	POINT	813051.6	825296.1	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_065	POINT	813095.5	825319.9	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_066	POINT	813139.4	825343.8	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_067	POINT	813183.4	825367.7	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_068	POINT	813223	825398.1	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_069	POINT	813264.8	825423	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_070	POINT	813314.6	825427.5	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05
Tuen Mun Area 40 Landing	5	LA_RM5_071	POINT	813364.4	825432.1	0	11	588	8	0.2	1.65E-03	5.37E-05	5.20E-05

**Notes:**

[1] Modelling parameters are referred to "Generating an Hour-By-Hour Model-Ready Marine Emission Inventory, RWDI Air Inc. and Environment Canada, US EPA 17th International Emission Inventory Conference, 2-5 June 2008, Portland, Oregon", approved EIA of Tuen Mun South Extension (AERIAR-236/2022), and approved EIA of Lei Yue Mun Waterfront Enhancement Project (AERIAR-219/2018).

**Marine Emission Inventory during Hotelling****Total Emission Rate**

Group <sup>[1]</sup>	Vessel Type	Emission Rate per Trip (g/s) <sup>[2]</sup>			Annual No. of Vessel Arrivals in Year 2019 <sup>[3]</sup>	Composite Emission Rate per Trip (g/s) <sup>[4]</sup>		
		NO <sub>x</sub>	RSP	FSP		NO <sub>x</sub>	RSP	FSP
1	Conventional Cargo Vessel	1.02E-01	4.06E-03	3.96E-03	-	1.02E-01	4.06E-03	3.96E-03
2	Dry Bulk Carrier	1.02E-01	4.06E-03	3.96E-03	-	1.02E-01	4.06E-03	3.96E-03
3	Tug	1.23E-01	4.92E-03	4.80E-03	-	1.23E-01	4.92E-03	4.80E-03
4	Chemical Carrier	2.65E-01	1.06E-02	1.03E-02	247	2.65E-01	1.06E-02	1.03E-02
	Gas Carrier	2.65E-01	1.06E-02	1.03E-02	134			
	Oil Tanker	2.65E-01	1.06E-02	1.03E-02	419			
5	Mechanised Lighter/Barge/Cargo Junk	1.39E-01	5.54E-03	5.40E-03	-	1.39E-01	5.54E-03	5.40E-03

**Engine in Operation**

Engine	On (1) or Off (0) <sup>[2]</sup>
AE	1

**Notes:**

[1] The vessel type is grouped according to the modelling parameter (i.e. stack height, exit temperature, exit velocity etc). Vessel types with the identical modelling parameters will be grouped.

[2] Only auxiliary engine is assumed in operation during hotelling with reference to Table 3-25 of Study on Marine Vessels Emission Inventory Final Report (HKUST, February 2012). The emission rate per trip considers the emission from the engine in operation as indicated in the table "Engine in Operation", and the calculation is documented in the "Technical Notes on Marine Emission for Pillar Point Area" submitted to EPD.

[3] Marine Traffic Consultant has provided the total number of RTVs but without breakdown into different vessel types. Hence, reference has been made to Marine Department's Vessels Arrivals by Ship Type and Ocean/River ([https://www.mardep.gov.hk/en/fact/pdf/portstat\\_2\\_y\\_a2.pdf](https://www.mardep.gov.hk/en/fact/pdf/portstat_2_y_a2.pdf)). Due to the pandemic situation, there was a significant change in marine traffic from Year 2020 to Year 2022. In view of this, the monthly profile of Year 2019 is considered the most appropriate and therefore adopted and assumed the same for future years.

[4] The emission rate per trip is calculated based on the following equation. Breakdown is provided and documented in "Technical Notes on Marine Emission for Pillar Point Area" submitted to EPD and emission rates are evenly apportioned into point sources in the model as shown in subsequent pages of this Appendix.

*Engine Emission Rate per Trip = (i)Time-in-mode x (ii)Engine Load Factors x (iii) Engine Power x (iv) Emission Factor, where*

(i) As indicated in the table of "calculation of Time-In-Mode by Route", time-in-mode is calculated from the average speed and possible maximum length of sailing route within assessment area provided by Marine Traffic Consultant.

(ii) Engine Load Factors are made reference to Table 4-7, Table 4-10 and Table 3-24 of Study on Marine Vessels Emission Inventory Final Report (HKUST, February 2012).

(iii) The average engine powers are made reference to Table 4-5 and Table 4-6 of the Study on Marine Vessels Emission Inventory Final Report (HKUST, February 2012).

(iv) The emission factor is made reference to Study on Marine Vessels Emission Inventory Final Report (HKUST, February 2012) Table 4-16. Under the Air Pollution Control (Fuel for Vessels) Regulation, all vessels assumed to use MGO due to requirement to fuel switch to compliant fuel (sulphur content <=0.5%) within Hong Kong waters.

**Modelling Parameters**

Gate	Group	Source ID	Type	X	Y	Base Elevation	Release Height [1]	Exit Temperature [1]	Exit velocity [1]	Internal diameter [1]	Emission Rate per Trip		
				(m)	(m)	(mpd)	(m)	(K)	(m/s)	(m)	NOx (g/s)	RSP (g/s)	FSP (g/s)
Tuen Mun Area 40 Landing	1	LA_RH1_001	POINT	812712.3	825185.0	0	11	555	25	0.8	1.13E-02	4.51E-04	4.40E-04
Tuen Mun Area 40 Landing	1	LA_RH1_002	POINT	812742.1	825203.4	0	11	555	25	0.8	1.13E-02	4.51E-04	4.40E-04
Tuen Mun Area 40 Landing	1	LA_RH1_003	POINT	812771.9	825221.7	0	11	555	25	0.8	1.13E-02	4.51E-04	4.40E-04
Tuen Mun Area 40 Landing	1	LA_RH1_004	POINT	812801.7	825240.1	0	11	555	25	0.8	1.13E-02	4.51E-04	4.40E-04
Tuen Mun Area 40 Landing	1	LA_RH1_005	POINT	812829.6	825261.2	0	11	555	25	0.8	1.13E-02	4.51E-04	4.40E-04
Tuen Mun Area 40 Landing	1	LA_RH1_006	POINT	812855.6	825284.6	0	11	555	25	0.8	1.13E-02	4.51E-04	4.40E-04
Tuen Mun Area 40 Landing	1	LA_RH1_007	POINT	812880.9	825308.8	0	11	555	25	0.8	1.13E-02	4.51E-04	4.40E-04
Tuen Mun Area 40 Landing	1	LA_RH1_008	POINT	812906.2	825333.0	0	11	555	25	0.8	1.13E-02	4.51E-04	4.40E-04
Tuen Mun Area 40 Landing	1	LA_RH1_009	POINT	812931.5	825357.1	0	11	555	25	0.8	1.13E-02	4.51E-04	4.40E-04
Tuen Mun Area 40 Landing	2	LA_RH2_001	POINT	812712.3	825185.0	0	8	555	25	0.8	1.13E-02	4.51E-04	4.40E-04
Tuen Mun Area 40 Landing	2	LA_RH2_002	POINT	812742.1	825203.4	0	8	555	25	0.8	1.13E-02	4.51E-04	4.40E-04
Tuen Mun Area 40 Landing	2	LA_RH2_003	POINT	812771.9	825221.7	0	8	555	25	0.8	1.13E-02	4.51E-04	4.40E-04
Tuen Mun Area 40 Landing	2	LA_RH2_004	POINT	812801.7	825240.1	0	8	555	25	0.8	1.13E-02	4.51E-04	4.40E-04
Tuen Mun Area 40 Landing	2	LA_RH2_005	POINT	812829.6	825261.2	0	8	555	25	0.8	1.13E-02	4.51E-04	4.40E-04
Tuen Mun Area 40 Landing	2	LA_RH2_006	POINT	812855.6	825284.6	0	8	555	25	0.8	1.13E-02	4.51E-04	4.40E-04
Tuen Mun Area 40 Landing	2	LA_RH2_007	POINT	812880.9	825308.8	0	8	555	25	0.8	1.13E-02	4.51E-04	4.40E-04
Tuen Mun Area 40 Landing	2	LA_RH2_008	POINT	812906.2	825333.0	0	8	555	25	0.8	1.13E-02	4.51E-04	4.40E-04
Tuen Mun Area 40 Landing	2	LA_RH2_009	POINT	812931.5	825357.1	0	8	555	25	0.8	1.13E-02	4.51E-04	4.40E-04
Tuen Mun Area 40 Landing	3	LA_RH3_001	POINTHOR	812712.3	825185.0	0	4	694.7	8	0.2	1.37E-02	5.47E-04	5.33E-04
Tuen Mun Area 40 Landing	3	LA_RH3_002	POINTHOR	812742.1	825203.4	0	4	694.7	8	0.2	1.37E-02	5.47E-04	5.33E-04
Tuen Mun Area 40 Landing	3	LA_RH3_003	POINTHOR	812771.9	825221.7	0	4	694.7	8	0.2	1.37E-02	5.47E-04	5.33E-04
Tuen Mun Area 40 Landing	3	LA_RH3_004	POINTHOR	812801.7	825240.1	0	4	694.7	8	0.2	1.37E-02	5.47E-04	5.33E-04
Tuen Mun Area 40 Landing	3	LA_RH3_005	POINTHOR	812829.6	825261.2	0	4	694.7	8	0.2	1.37E-02	5.47E-04	5.33E-04
Tuen Mun Area 40 Landing	3	LA_RH3_006	POINTHOR	812855.6	825284.6	0	4	694.7	8	0.2	1.37E-02	5.47E-04	5.33E-04
Tuen Mun Area 40 Landing	3	LA_RH3_007	POINTHOR	812880.9	825308.8	0	4	694.7	8	0.2	1.37E-02	5.47E-04	5.33E-04
Tuen Mun Area 40 Landing	3	LA_RH3_008	POINTHOR	812906.2	825333.0	0	4	694.7	8	0.2	1.37E-02	5.47E-04	5.33E-04
Tuen Mun Area 40 Landing	3	LA_RH3_009	POINTHOR	812931.5	825357.1	0	4	694.7	8	0.2	1.37E-02	5.47E-04	5.33E-04
Tuen Mun Area 40 Landing	4	LA_RH4_001	POINT	812712.3	825185.0	0	20	555	25	0.8	2.95E-02	1.18E-03	1.15E-03
Tuen Mun Area 40 Landing	4	LA_RH4_002	POINT	812742.1	825203.4	0	20	555	25	0.8	2.95E-02	1.18E-03	1.15E-03
Tuen Mun Area 40 Landing	4	LA_RH4_003	POINT	812771.9	825221.7	0	20	555	25	0.8	2.95E-02	1.18E-03	1.15E-03
Tuen Mun Area 40 Landing	4	LA_RH4_004	POINT	812801.7	825240.1	0	20	555	25	0.8	2.95E-02	1.18E-03	1.15E-03
Tuen Mun Area 40 Landing	4	LA_RH4_005	POINT	812829.6	825261.2	0	20	555	25	0.8	2.95E-02	1.18E-03	1.15E-03
Tuen Mun Area 40 Landing	4	LA_RH4_006	POINT	812855.6	825284.6	0	20	555	25	0.8	2.95E-02	1.18E-03	1.15E-03
Tuen Mun Area 40 Landing	4	LA_RH4_007	POINT	812880.9	825308.8	0	20	555	25	0.8	2.95E-02	1.18E-03	1.15E-03
Tuen Mun Area 40 Landing	4	LA_RH4_008	POINT	812906.2	825333.0	0	20	555	25	0.8	2.95E-02	1.18E-03	1.15E-03
Tuen Mun Area 40 Landing	4	LA_RH4_009	POINT	812931.5	825357.1	0	20	555	25	0.8	2.95E-02	1.18E-03	1.15E-03
Tuen Mun Area 40 Landing	5	LA_RH5_001	POINT	812712.3	825185.0	0	11	588	8	0.2	1.54E-02	6.16E-04	6.00E-04
Tuen Mun Area 40 Landing	5	LA_RH5_002	POINT	812742.1	825203.4	0	11	588	8	0.2	1.54E-02	6.16E-04	6.00E-04
Tuen Mun Area 40 Landing	5	LA_RH5_003	POINT	812771.9	825221.7	0	11	588	8	0.2	1.54E-02	6.16E-04	6.00E-04
Tuen Mun Area 40 Landing	5	LA_RH5_004	POINT	812801.7	825240.1	0	11	588	8	0.2	1.54E-02	6.16E-04	6.00E-04
Tuen Mun Area 40 Landing	5	LA_RH5_005	POINT	812829.6	825261.2	0	11	588	8	0.2	1.54E-02	6.16E-04	6.00E-04
Tuen Mun Area 40 Landing	5	LA_RH5_006	POINT	812855.6	825284.6	0	11	588	8	0.2	1.54E-02	6.16E-04	6.00E-04
Tuen Mun Area 40 Landing	5	LA_RH5_007	POINT	812880.9	825308.8	0	11	588	8	0.2	1.54E-02	6.16E-04	6.00E-04
Tuen Mun Area 40 Landing	5	LA_RH5_008	POINT	812906.2	825333.0	0	11	588	8	0.2	1.54E-02	6.16E-04	6.00E-04
Tuen Mun Area 40 Landing	5	LA_RH5_009	POINT	812931.5	825357.1	0	11	588	8	0.2	1.54E-02	6.16E-04	6.00E-04

**Notes:**

[1] Modelling parameters are referred to "Generating an Hour-By-Hour Model-Ready Marine Emission Inventory, RWDI Air Inc. and Environment Canada, US EPA 17th International Emission Inventory Conference, 2-5 June 2008, Portland, Oregon", approved EIA of Tuen Mun South Extension (AERIAR-236/2022), and approved EIA of Lei Yue Mun Waterfront Enhancement Project (AERIAR-219/2018).

**Calculation of Multiplying Factor for Total Vessel Count****Monthly Vessel Count for Year 2048**

Location	Monthly Vessel Count in Aug for Maneuvering <sup>[1]</sup>	Monthly Vessel Count in Aug for Hotelling <sup>[1]</sup>
Tuen Mun Area 40 Landing	1,259	630

**Notes:**

[1] The marine traffic data for August is provided by Marine Traffic Consultant.

**Monthly Multiplying Factor derived from Marine Traffic in Year 2019**

Month	Total No. of Arrivals by RTVs <sup>[1]</sup>	Monthly Multiplying Factor
Jan-19	5,820	1.03
Feb-19	3,401	0.60
Mar-19	5,783	1.02
Apr-19	5,411	0.96
May-19	5,766	1.02
Jun-19	5,456	0.96
Jul-19	5,645	1.00
<b>Aug-19</b>	<b>5,659</b>	<b>1.00</b>
Sep-19	5,382	0.95
Oct-19	5,160	0.91
Nov-19	5,534	0.98
Dec-19	5,632	1.00

**Notes:**

[1] Since no monthly profile is available from Marine Traffic Consultant, the annual vessel count is calculated based on monthly profile in "Monthly Vessel Arrivals by Ocean/River and Cargo/Passenger Vessels" published by Marine Department ([https://www.mardep.gov.hk/en/fact/pdf/portstat\\_2\\_m\\_a1.pdf](https://www.mardep.gov.hk/en/fact/pdf/portstat_2_m_a1.pdf)). Due to the pandemic situation, there was a significant change in marine traffic from Year 2020 to Year 2022. In view of this, the monthly profile of Year 2019 is considered the most appropriate and therefore adopted and assumed the same for future years.

## Hourly Multiplying Factor derived from Marine Traffic in August 2048

Hour		Tuen Mun Area 40 Landing			
Start	End	No. of Marine Vessels for Maneuvering <sup>[1]</sup>	Monthly-Hourly Multiplying Factor	No. of Marine Vessels for Hotelling <sup>[1]</sup>	Monthly-Hourly Multiplying Factor
0	1	22	1.7%	11	1.7%
1	2	12	1.0%	6	1.0%
2	3	12	1.0%	6	1.0%
3	4	12	1.0%	6	1.0%
4	5	25	2.0%	13	2.0%
5	6	22	1.7%	11	1.7%
6	7	59	4.7%	30	4.7%
7	8	59	4.7%	30	4.7%
8	9	59	4.7%	30	4.7%
9	10	56	4.4%	28	4.4%
10	11	34	2.7%	17	2.7%
11	12	65	5.2%	33	5.2%
12	13	56	4.4%	28	4.4%
13	14	65	5.2%	33	5.2%
14	15	90	7.1%	45	7.1%
15	16	71	5.6%	36	5.6%
16	17	78	6.2%	39	6.2%
17	18	78	6.2%	39	6.2%
18	19	102	8.1%	51	8.1%
19	20	81	6.4%	41	6.4%
20	21	71	5.6%	36	5.6%
21	22	37	2.9%	19	2.9%
22	23	50	4.0%	25	4.0%
23	24	43	3.4%	22	3.4%

## Notes:

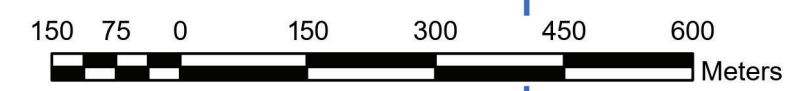
[1] The number of hourly marine vessels for Aug 2048 is provided by Marine Traffic Consultant. It contains the total number of marine vessels for the 31 days in Aug in Year 2048 for each hour. For example, from Hour 0 to Hour 1 (i.e. first hour of 1 Aug + first hour of 2 Aug, .... 1st hour of 31 Aug), there are total 22 marine vessels maneuvering and total 11 marine hotelling for the first hour during the whole August.

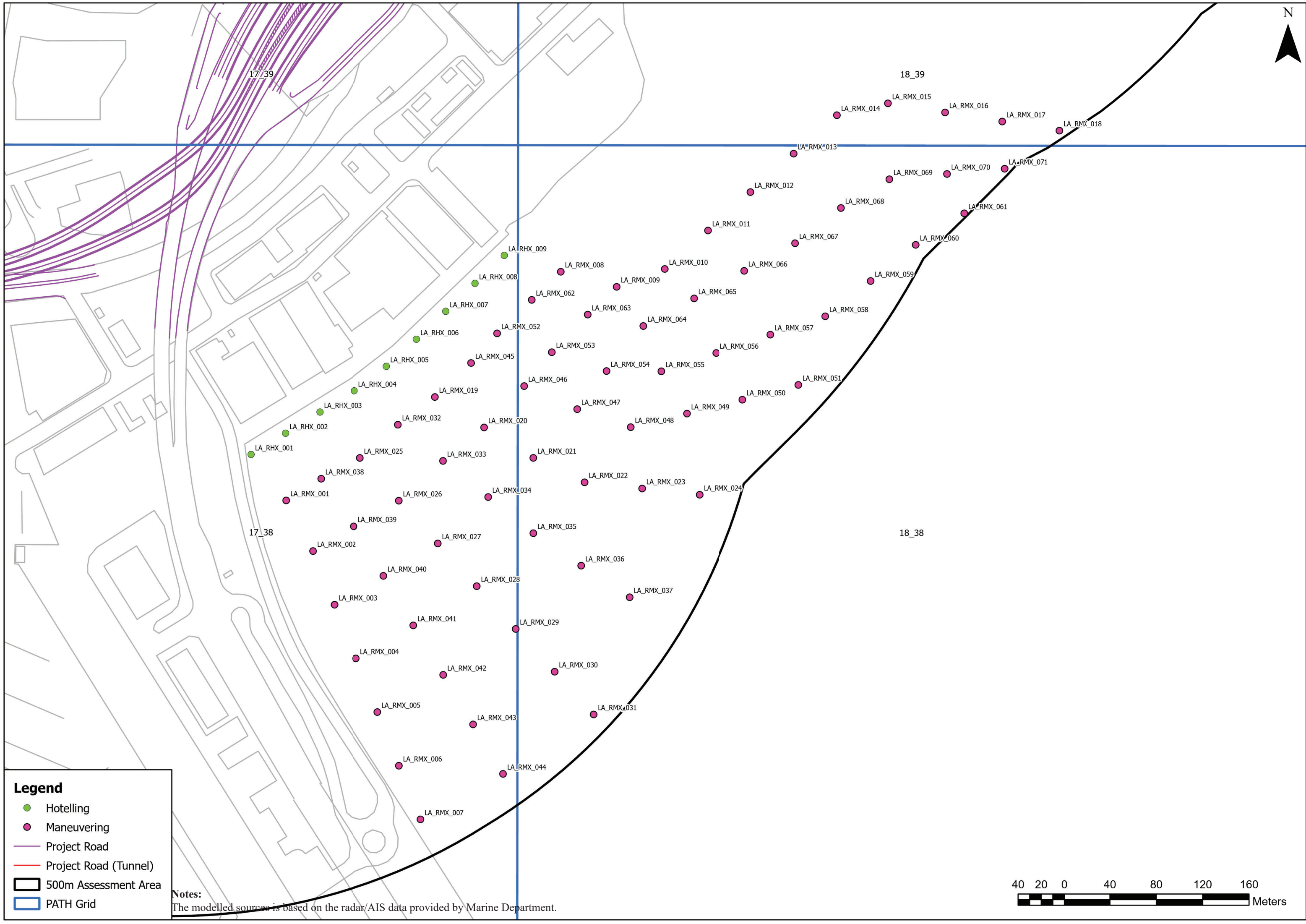


**Legend**

- Hotelling
- Maneuvering
- Project Road
- Project Road (Tunnel)
- 500m Assessment Area
- PATH Grid

**Notes:**  
The modelled sources is based on the radar/AIS data provided by Marine Department.





- Legend**
- Hotelling
  - Maneuvering
  - Project Road
  - Project Road (Tunnel)
  - 500m Assessment Area
  - PATH Grid

**Notes:**  
The modelled sources is based on the radar/AIS data provided by Marine Department.

