Annex C

Table 4.8 Pedestrian Trip Rates from Surveyed Buildings

Building (Type of Building)	Address	Unit/ Content	AM Peak Hour			PM Peak Hour		
			Gen.	Att.	2-way	Gen.	Att.	2-way
Pedestrian Generation – Residential (persons/hr)								
The Met. Bliss	15 Hang Kwong Street	364 units	292	81	373	62	182	244
The Entrance	1 Lok Wo Sha Lane	148 units	114	18	132	20	67	87
Pedestrian Generation – Retail (persons/hr)								
Marbella Mall	23 On Chun Street	Around 5,200 m^2	83	125	208	300	312	612
Derived Trip Rates for Residential (persons /hr/unit)								
The Met. Bliss			0.80	0.22	–	0.17	0.50	–
The Entrance			0.77	0.12	–	0.14	0.45	–
Largest Trip Rates (1)			**0.80**	**0.22**	**–**	**0.17**	**0.50**	**–**
Derived Trip Rates for Retail (persons /hr/100 m^2)								
Marbella Mall			**1.60**	**2.40**	**–**	**5.77**	**6.00**	**–**

Note: Gen. – Generation; Att. – Attraction.
(1) The largest rates are adopted for conservative assessment purpose.

4.8.6 By considering the pedestrian trip rates above, the additional pedestrian generation and attraction of the proposed development are also estimated and tabulated in **Table 4.9**.

Table 4.9 Estimated Pedestrian Traffic Generation of the Proposed Development

Use	Unit/ Content	AM Peak			PM Peak		
		Gen.	Att.	Total	Gen.	Att.	Total
Adopted Pedestrian Trip Rates (1)							
Residential (1)	persons/hr /units	0.80	0.22	–	0.17	0.50	–
Retail (2)	persons/hr /100 m^2	1.60	2.40	–	5.77	6.00	–
Estimated Pedestrian Generation of the Proposed Development							
Residential	772 units	618	170	788	132	386	518
Retail	3,067 m^2	50	74	124	177	185	362
Exhibition / Convention Hall (3)(4)	998 m^2	0	500	500	500	500	1,000
Total		**668**	**744**	**1,412**	**809**	**1,071**	**1,880**

Notes: Gen. – Generation; Att. – Attraction.
(1) The pedestrian trip rates derived based on pedestrian survey are larger than that based on design population and therefore are adopted for conservative assessment purpose.
(2) The pedestrian trip rates derived in **Table 4.8** are adopted.
(3) Generally, staff will arrive earlier than the visitors to set up the exhibition hall and they will not arrive at the hall in the same hour. However, for conservative assessment purpose, it is assumed all visitors and staff will be attracted to the proposed development in the same hour.

(4) As evening event may be held at the proposed exhibition or convention hall, it is assumed all pedestrians would be attracted to the proposed development at PM peak for conservative purposes.

4.8.7 The proposed development is estimated to generate 2-way pedestrian flows of 1,412 and 1,880 persons/ hour during AM and PM peak hours respectively.

4.8.8 In order to establish the mode of transport for the proposed development, reference was made to the 2021 Population Census as shown in **Table 4.10**. Since few mode of transports, such as ferry/vessel is not available in close proximity, company bus/van and school bus are not guarantee to be available, etc, they are excluded from the mode of transports for the proposed development. Their users will be distributed to the available mode of transports on a pro-rata basis.

Table 4.10 Estimated Modal Split for the Proposed Development

Mode	Number of Persons			Percentage	Adjusted Modal Split
	Work [a]	Study [b]	Total [a] + [b]		
MTR (Local line)	106,720	33,518	140,238	39.88%	43.28%
Bus	75,614	17,166	92,780	26.38%	28.63%
On foot only	18,460	25,218	43,678	12.42%	13.48%
Private car / Passenger van	20,746	6,363	27,109	7.71%	8.37%
Public light bus	11,989	5,755	17,744	5.05%	5.48%
Company bus / van	6,758	--	6758	1.92%	N.A. (2)
School Bus	--	14,361	14,361	4.08%	N.A. (2)
Taxi	2,021	439	2,460	0.70%	0.76%
Residential coach service	2,054	781	2,835	0.81%	N.A. (2)
Ferry / Vessel	154	47	201	0.06%	N.A. (2)
Others	3,262	266	3,528	1.00%	N.A. (2)
Total	247,778	103,914	351,692	100.00%	**100%**

Notes: (1) Source: Table B203 and Table C204 of Shatin District in 2021 Population Census.

(2) The transport mode is not applicable to the proposed development. Their users will be distributed to the available mode of transports on a pro-rata basis.

4.8.9 In **Table 4.10**, the adjusted modal split of MTR users for the proposed development is 43.28%. It should be noted that this figure is derived by making reference to the overall Shatin District. In fact, the proposed development site is located at 600m walking distance away from the Ma On Shan MTR Station, the percentage of the MTR users should be significantly more than 43.28% because the number includes remote developments in the Shatin District.

4.8.10 In the subsequent analysis, the pedestrian generation and attraction based on the above adjusted different mode of transports are estimated and presented in AM and PM hour is estimated in **Table 4.11**.

Table 4.11 Estimated Pedestrian Generation and Attraction Based on Different Mode of Transports during AM and PM Peak Hour

Mode of Transport	Adjusted Modal Split	Estimated Peak Hour Pedestrian Flows (persons / hr)					
		AM Peak Hour			PM Peak Hour		
		Gen.	Att.	Total	Gen.	Att.	Total
MTR Station	43.28%	289	322	611	350	463	813
Bus	28.63%	191	213	404	232	307	539
On foot only	13.48%	90	100	190	109	144	253
Private car / Passenger van	8.37%	56	62	118	68	90	158
Public light bus	5.48%	37	41	78	44	59	103
Taxi	0.76%	5	6	11	6	8	14
Total	**100.00%**	**668**	**744**	**1,412**	**809**	**1,071**	**1,880**

Note: Gen. – Generation; Att. – Attraction.

4.9 Reference and Design Pedestrian Flows

4.9.1 The 2031 Reference Pedestrian Flows, i.e. the pedestrian flows in the local road without the proposed development, were estimated based on the following equation.

2031 Reference Pedestrian Flows = 2025 Existing Pedestrian Flows x $(1 + 0.5\%)^6$ +

4.9.2 The 2031 Design Pedestrian Flows, i.e. the pedestrian flows in the local road network with the proposed development, were estimated based on the following equation:

2031 Design Pedestrian Flows = 2031 Reference Flows + Additional Pedestrians Induced by the proposed development

4.10 Footpath Capacity Assessment

4.10.1 Capacity analysis of the concerned footpath was carried out for the assessment year 2031. The pedestrians generated and attracted by the proposed development that anticipated to travel to/from MTR Ma On Shan Station will use the routings shown in **Figure 3.4**. However, for conservative assessment purposes, all pedestrians are assumed to use the routing at the south of the Site only. The assessment results are shown in **Table 4.12**.

Table 4.12 Year 2031 Capacity Analysis of the Concerned Footpaths

Ref.	Location	Actual Width (m)	Effective Width (m)(1)	Peak Hour flow (ped/hr)		Flow Rate(2) ped/m/min [LOS]	
				AM	PM	AM	PM
2031 Reference Scenario							
P1	Eastern footpath of On Chun Street	3.9	2.9	53	49	0.3 [A]	0.3 [A]
P2	Southern footpath of On Chun Street	3.9	2.9	467	413	2.7 [A]	2.4 [A]
P3	Southern footpath of On Chun Street (near The Waterside)	2.7	1.7	615	714	6.0 [A]	7.0 [A]
P4	Eastern footpath of On Yuen Street	3.7	2.7	539	381	3.3 [A]	2.4 [A]
P5	Northern footpath of Sai Sha Road	3.4	2.4	400	570	2.8 [A]	4.0 [A]
2031 Design Scenario							
P1	Eastern footpath of On Chun Street	3.9	2.9	53	49	0.3 [A]	0.3 [A]
P2	Southern footpath of On Chun Street (near The Tolo Place)	3.9	2.9	467	413	2.7 [A]	2.4[A]
P3	Southern footpath of On Chun Street (near The Waterside)	2.7	1.7	1,898	2,422	18.6 [B]	23.7 [C]
P4	Eastern footpath of On Yuen Street	3.7	2.7	1,632	1,836	10.1 [A]	11.3 [A]
P5	Northern footpath of Sai Sha Road	3.4	2.4	1,493	2,025	10.4 [A]	14.1 [A]

Notes: (1) A clearance zone of 0.5m on side with obstruction was adopted.
(2) For LOS "C" or above, flow volumes should be less than 33 ped/m/min.

4.10.2 **Table 4.12** shows that the condition of the concerned footpaths will be satisfactory after accommodating the pedestrians generated and attracted by the proposed development in both AM and PM Peak hours with LOS "C" or above.

4.11 Public Transport Assessment – Railway Patronage Capacity

4.11.1 In order to ensure sufficient railway capacity will be able to accommodate for the proposed development, an assessment was conducted to review the rail patronage capacity. Since railway services in AM are generally busier than that in PM, AM peak hour is considered more than critical in conducting railway capacity assessment, the AM scenario is used for analysis purpose.

4.11.2 Having considered attracted pedestrians may board from different MTR stations along Tuen Ma Line, the impact has been spread throughout these stations and therefore insignificant. But all pedestrians generated from the proposed development have to board on the same station, the Ma On Shan MTR Station, hence the impact of generation pedestrian traffic is considered more significant to railway patronage capacity and adopted for the subsequent assessment.

4.11.3 As shown in **Table 4.11**, 1,412 persons will be induced by the proposed development and 611 persons are anticipated to use railway services during AM peak hour. Taking into consideration the proposed development site is located at 600m walking distance away from the Ma On Shan MTR Station, a conservative assessment is carried out to assume ALL pedestrian traffic generated by the proposed development using the railway services, which 668 persons/hour will be generated from the proposed development.

4.11.4 According to the latest "TLB's reply to initial questions raised by Legislative Council Members in examining the Estimates of Expenditure 2025-26", the existing morning peak hour loading factor of Tuen Ma Line at critical section (Tsuen Wan West to Mei Foo) in 2024 is 62%, which the passenger demand and capacity (based on 6 passengers per square meter) are 36,200 persons/hour and 58,800 persons /hour, respectively. Although the critical section is not identified at Ma On Shan MTR Station, for conservative assessment purposes, numbers of the critical section are adopted for Ma On Shan MTR Station.

4.11.5 In 2031, the passenger demand is projected to be increased to approximately 41,900 persons /hour. The 2031 railway capacity performance is then evaluated by considering the 2031 passenger demand and the additional passengers to be induced by the proposed development. The results are tabulated in **Table 4.13**.

Table 4.13 2031 Railway Capacity Performance

Items	Capacity (persons /hour /direction)	Reference Scenario (see Note 1)	Design Scenarios (see Notes 1, 2 and 3)
2031 Projected Morning Peak Hour Passenger Demand (persons/hour)	-	41,900	42,568 [+668]
Loading factor - Existing Peak Hour Capacity	58,800	71%	72%

Note 1: According to statistics for the Heavy Rail System in 2022, 2023 and 2024, the patronages for Tuen Ma Line are as follows: 2022: 34,700 2023: 35,700 2024: 36,200.
Based on the above, the average growth rate for Tuen Ma Line between 2022 and 2024 is calculated to be 2.1% and adopted in the subsequent assessment.
2031 Reference Scenario = 2024 morning peak hour passenger demand x $(1+2.1\%)^7$

Note 2: 2031 Design Scenario = 2031 Reference Scenario + Additional passenger demand induced by the Proposed Development.

Note 3: Figures in square brackets indicate the increase in passengers due to the proposed development.

4.11.6 From **Table 4.13**, after accommodating the additional passengers induced by the proposed development, the 2031 morning peak hour loading factor of Tuen Ma Line at critical sections, based on existing peak hour capacity, will be 72% (6 passengers per square meter).

4.11.7 It should be noted that the increase in passenger during the morning peak hour at Tuen Ma Line due to the proposed development, are only 688 persons. The increase in passengers only constitute 1.6% of the passenger demand of Tuen Ma Line, which are considered insignificant.

Table 5.2 Summary of Overall Transport Facilities Provisions

Facilities	Dimensions	Proposed Provision			
		Residential	Retail	Exhibition /Convention Hall	Total
Car Parking Space	2.5m (W) x 5.0m (L) x 2.4m (H)	145	20	6	**171**
Visitor Parking Space	2.5m (W) x 5.0m (L) x 2.4m (H)	5	0	0	**5**
Disabled Car Parking Space	3.5m (W) x 5.0m (L) x 2.4m (H)	3	1	1	**5**
Motorcycle Parking Space	1.0m (W) x 2.4m (L) x 2.4m (H)	8	3	1	**12**
Loading/Unloading Bay		1	4 (1)	2 (1)	**7**
LGV	3.5m (W) x 7.0m (L) x 3.6m (H)	0	3	1	**4**
HGV	3.5m (W) x 11.0m (L) x 4.7m (H)	1	1	1	**3**
Bicycle Parking Space	-	120			**120**

Note: (1) Goods vehicle provision is divided into 65% LGV and 35% HGV as per HKPSG requirement

5.2.5 The development proposal will follow the existing building footprint and building form. In the layout design, the carparking area in the basement will be maximized to accommodate more parking spaces for residential use to achieve the high-end of the HKPSG requirement as far as possible and there is no extra space to accommodate a Public Vehicle Park. However, there are 28 nos. of car parking spaces provided for the commercial use and exhibition/convention hall use and these spaces can be opened for public use as hourly parking.