
Appendix C
Traffic Review



1. Introduction

1.1 Objective

1.1.1 The Application Site is located in Planning Area 32B near the planned HSK MTR Station within the Hung Shui Kiu New Development Area (HSK NDA). The site is zoned “Commercial (1)” (“C(1)”) under the current Hung Shui Kiu & Ha Tsuen (HSK & HT) Outline Zoning Plan (OZP) with various types of commercial use (e.g. office, retail, hotel, etc.) permitted as of right within this zone.

1.1.2 Under the current development proposal, the Applicant proposes to include ‘Flat’ use in this zone to form a mixed-use development (i.e. **Proposed Scheme**). As ‘Flat’ use is a Column 2 use under the OZP requiring planning permission from Town Planning Board (TPB), S.16 planning application is submitted for the proposed inclusion of residential element in the zone. This Traffic Review Report is prepared in support of the S.16 planning application by reviewing the vehicular access arrangement and internal transport provisions of the Proposed Scheme, and comparing the Proposed Scheme with the as-of-right permitted commercial scheme to assess the potential traffic impact (if any) of the project.

2. PROPOSED DEVELOPMENT

2.1 Development Schedule

2.1.1 For the purpose of assessment, the as-of-right permitted commercial scheme (or known as **Hypothetical Development Scheme**) is formulated based on the commercial mix suggested in the previous version of the HSK & HT Outline Development Plan (ODP) (i.e. No. D/HSK/1) for the Application Site. The relevant information is provided in **Table 2-1**.

Table 2-1 - Hypothetical Development Schedule

Area 32B	
Retail (~35%)	45,223 m ² GFA
Office (~45%)	58,145 m ² GFA
Hotel (~20%)	25,842 m ² GFA (~857 rooms) ⁽¹⁾
<i>Total</i>	<i>129,210 m² GFA</i>

Remark:

⁽¹⁾ Based on 30.16 m² for each hotel room

2.1.2 Under the **Proposed Scheme**, majority (55%) of the total PR / GFA permissible for the site would be designated for the as-of-right permitted commercial use (i.e. 71,066 m² NGFA), whereas the remaining (45%) permissible PR / GFA would be used for the proposed residential development (i.e. 58,144 m² DGFA). The proposed residential use would be clustered in the eastern portion of the site (Site A) with some as-of-right permitted commercial use (e.g. retail) provided. The western portion of the site (Site B) would only be used for commercial purpose (e.g. office, hotel and retail) without any residential element. The development schedule of the Proposed Scheme is shown in **Table 2-2**.

Table 2-2 - Proposed Development Schedule

Development Parameters	Area 32B Site A	Area 32B Site B
Site Area	8,967 m ²	4,634 m ²
Domestic Portion		
Domestic GFA	58,144 m ²	-
No. of Residential Towers	3	-
No. of Units	1,240	-
Average Flat Size	~47 m ²	-
Non-domestic Portion		
Non-Domestic GFA	Retail – 5,221 m ²	Retail – 354 m ² Hotel – 27,871 m ² (~ 924 rooms) ⁽¹⁾ Office – 9,290 m ² Office – 28,330 m ² ⁽²⁾

Remark:

⁽¹⁾ Based on 30.16 m² for each hotel room

⁽²⁾ Around 40% of the total non-domestic GFA in Area 32B will be implemented at the later stage

2.2 Development Access

2.2.1 As indicated in the Outline Development Plan and Road Gazette Plan, two vehicular access would be provided to serve Area 32B. As shown in **Drawing 2.1**, the development access for Site A would be located at the cul-de-sac of Road L22 (at level +13 mPD) which also serve for Site B via the internal road connected. The Carpark access for Site B would be located at Road L22 close to the cul-de-sac of Road L22.



Drawing 2.1 - Vehicular Accesses

2.3 Internal Transport Facilities

2.3.1 The parking and loading / unloading facilities of the proposed development will be provided in accordance with the requirements as stipulated in the latest Hong Kong Planning Standards and Guidelines (HKPSG). The respective requirements are summarized in **Table 2-3**.

Table 2-3 - HKPSG Parking and Servicing Facilities Provision Requirements

	HKPSG Requirements
<i>Private Car Parking Spaces</i>	
Private Housing – Private Car Parking Spaces	GPS x R1 ⁽¹⁾ x R2 ⁽²⁾ x R3 ⁽³⁾ For 40 m ² < flat size ≤ 70 m ² = 1 space per 4 – 7 flats x 1.2 x 0.75 x 0.9 = 0.81 spaces per 4 – 7 flats
Private Housing – Visitor Private Car Parking Spaces	5 spaces per block
Retail – Private Car Parking Spaces	1 car space per 150 – 300 m ² GFA
Hotel – Private Car Parking Spaces	1 car space per 100 rooms
Office – Private Car Parking Spaces	For the first 15,000m ² GFA, 1 car space per 150 – 200 m ² GFA. Above 15,000 m ² GFA, 1 car space per 200 – 300 m ² GFA
<i>Motorcycle Parking Spaces</i>	
Private Housing – Motorcycle Parking Spaces	1 space per 100 – 150 flats
Retail – Motorcycle Parking Spaces	5% – 10% total provision for private cars
Hotel – Motorcycle Parking Spaces	5% – 10% total provision for private cars
Office – Motorcycle Parking Spaces	5% – 10% total provision for private cars
<i>Loading and Unloading Bays</i>	
Private Housing – Loading and Unloading Bay	1 space for every 800 flats subject to min. 1 bay per block
Retail – Loading and Unloading Bay	1 loading / unloading bay for goods vehicles for every 800 to 1,200 m ² or part thereof, GFA
Hotel – Loading and Unloading Bay	0.5 – 1 loading / unloading bays for goods vehicles per 100 rooms
Office – Loading and Unloading Bay	1 loading / unloading bay for goods vehicles for every 2,000 to 3,000 m ² or part thereof, GFA

HKPSG Requirements	
Lay-bys	
Hotel – Taxi / Private Cars Lay-by	4 lay-bys for taxis and private cars for ≥ 600 rooms
Hotel – Single-Deck Tour Buses Lay-by	3 lay-bys for single-deck tour buses for ≥ 900 rooms
Bicycle Parking Spaces	
Private Housing – Bicycle Parking Spaces	1 space per 15 flats with flat size smaller than 70 m ²

Remark:

- (¹) For 40 m² < flat size ≤ 70 m², and R1 of 1.2 is adopted
- (²) An accessibility adjustment ratio (R2) of 0.75 has been adopted with the site falling into the 500 m radius of future Hung Shui Kiu MTR Station.
- (³) The site area of Site A is 8,967 m². With domestic GFA of 58,144 m² provided with equivalent domestic plot ratio of 6.48 for the Site A, a development intensity adjustment ratio (R3) of 0.9 is adopted.

2.3.2 Taken into consideration the proximity / convenience for access to public transport services (excluding rail) and the availability of public car-parking spaces, a Global Parking Standard (GPS) of 6 is proposed for the residential development. In light of the HKPSG requirements given in **Table 2-3**, the proposed provisions for the Area 32B Site A and Site B (before the implementation of 28,330 m² office GFA) are summarized in **Table 2-4**. The proposed provisions for the Area 32B Site A and Site B (after the implementation of 28,330 m² office GFA at the later stage) are summarized in **Table 2-5**.

**Table 2-4 - Proposed Internal Transport Facilities Provisions
(Before the implementation of 28,330 m² office GFA in Site B)**

Area	Land Use	Parameter	Type	Required Provision	Proposed Provision (GPS = 6)		
32B (Site A)	Residential	1,240 units	Residential Parking Space	40<Flat Size≤70	144 - 252	168	
			Visitors' Parking Space		15	15	
			Motorcycle Parking Space		9 - 13	13 (¹)	
	Retail	5,221 m ²		Loading / Unloading Bay		3	3
				Bicycle Parking Space		83	83
				Car Parking Space		18 - 35	35 (²)
				Motorcycle Parking Space		1 - 4	4 (³)
			Loading / Unloading Bay		5 - 7	5 (⁴)	

Area	Land Use	Parameter	Type	Required Provision	Proposed Provision (GPS = 6)
32B (Site B)	Retail	354 m ²	Car Parking Space	2 - 3	3 ⁽²⁾
			Motorcycle Parking Space	1 - 1	1 ⁽³⁾
			Loading / Unloading Bay	1 - 1	1 ⁽⁴⁾
	Hotel	924 rooms	Car Parking Space	10	10
			Motorcycle Parking Space	1 - 1	1 ⁽³⁾
			Loading / Unloading Bay for Goods Vehicle	5 - 10	5 ⁽⁵⁾
			Lay-by for taxi and private car	4	4
			Lay-by for single-deck tour buses	3	3
			Office	9,290 m ²	Car Parking Space
	Office	9,290 m ²	Motorcycle Parking Space	3 - 7	6 ⁽³⁾
			Loading / Unloading Bay	4 - 5	4 ⁽⁷⁾

Remark:

(1) Based on 1 motorcycle space per 100 flats

(2) Based on 1 car space per 150 m² GFA

(3) Based on 10% total provision for private car

(4) Based on 1 loading bay per 1,200 m² GFA

(5) Based on 0.5 loading bay per 100 rooms

(6) For the first 15,000 m² GFA, based on 1 car space per 175 m² GFA. Above 15,000 m² GFA, based 1 car space per 250 m² GFA

(7) Based on 1 loading bay per 3,000 m² GFA

**Table 2-5 - Proposed Internal Transport Facilities Provisions
(After the implementation of 28,330 m² office GFA at the later stage)**

Area	Land Use	Parameter	Type	Required Provision	Proposed Provision (GPS = 6)		
32B (Site A)	Residential	1,240 units	Residential Parking Space	40<Flat Size≤70	144 - 252	168	
			Visitors' Parking Space		15	15	
		1,240 units	Motorcycle Parking Space		9 - 13	13 ⁽¹⁾	
			Loading / Unloading Bay		3	3	
			Bicycle Parking Space		83	83	
	Retail	5,221 m ²	Car Parking Space		18 - 35	35 ⁽²⁾	
			Motorcycle Parking Space		1 - 4	4 ⁽³⁾	
			Loading / Unloading Bay		5 - 7	5 ⁽⁴⁾	
	32B (Site B)	Retail	354 m ²	Car Parking Space		2 - 3	3 ⁽²⁾
				Motorcycle Parking Space		1 - 1	1 ⁽³⁾
Loading / Unloading Bay					1 - 1	1 ⁽⁴⁾	
Hotel		924 rooms	Car Parking Space		10	10	
			Motorcycle Parking Space		1	1 ⁽³⁾	
			Loading / Unloading Bay for Goods Vehicle		5 - 10	5 ⁽⁵⁾	
Office	37,620 m ²	Lay-by for taxi and private car		4	4		
		Lay-by for single-deck tour buses		3	3		
		Car Parking Space		151 - 214	177 ⁽⁶⁾		
		Motorcycle Parking Space		8 - 22	18 ⁽³⁾		
			Loading / Unloading Bay		13 - 19	13 ⁽⁷⁾	

Remark:

⁽¹⁾ Based on 1 motorcycle space per 100 flats

⁽²⁾ Based on 1 car space per 150 m² GFA

⁽³⁾ Based on 10% total provision for private car

⁽⁴⁾ Based on 1 loading bay per 1,200 m² GFA

⁽⁵⁾ Based on 0.5 loading bay per 100 rooms

⁽⁶⁾ For the first 15,000 m² GFA, based on 1 car space per 175 m² GFA. Above 15,000 m² GFA, based 1 car space per 250 m² GFA

⁽⁷⁾ Based on 1 loading bay per 3,000 m² GFA

3. Traffic Impact

3.1 Trip Generation

3.1.1 To compare the development traffic generations between the Proposed Scheme and the Hypothetical Scheme, references were made to the trip generation and attraction rates as stipulated in Annex C of Transport Planning and Design Manual (TPDM) Volume 1 Chapter 3 published by Transport Department. The adopted trip rates are presented in **Table 3-1**.

Table 3-1 - Trip Generation and Attraction

Land Use	Unit	Trip Rate			
		AM Peak		PM Peak	
		Gen.	Att.	Gen.	Att.
Private Housing (Flat Size = 50 m ²) ⁽¹⁾	pcu/hr/flat	0.0548	0.0335	0.0216	0.026
Retail	pcu/hr/100 m ² GFA	0.2296	0.2434	0.31	0.3563
Office	pcu/hr/100 m ² GFA	0.1703	0.2452	0.1573	0.1175
Hotel	pcu/hr/guest room	0.1329	0.1457	0.129	0.1546

Remark:

⁽¹⁾ Based on interpolation between flat size of 60 m² and 70 m²

3.1.2 Based on the proposed development schedule as given in **Table 2-2** and the hypothetical development schedule as given in **Table 2-1**, the estimated trips are presented in **Table 3-2**.

Table 3-2 - Trip Generation and Attraction

Land Use	Parameters	Trip Generation / Attraction (pcus/hr)			
		AM Peak		PM Peak	
		Gen.	Att.	Gen.	Att.
Proposed Scheme (A)					
Area 32B (Site A)					
Private Housing	1,240 units	68	42	27	32
Retail	5,221 m ²	12	13	16	19
Area 32B (Site B)					
Retail	354 m ²	1	1	1	1
Office	37,620 m ²	64	92	59	44
Hotel	924 rooms	123	135	119	143
<i>Total (A)</i>		<i>268</i>	<i>283</i>	<i>222</i>	<i>239</i>

Land Use	Parameters	Trip Generation / Attraction (pcus/hr)			
		AM Peak		PM Peak	
		Gen.	Att.	Gen.	Att.
Hypothetical Scheme (B)					
Area 32B (Sites A and B)					
Retail	45,223 m ²	104	110	140	161
Office	58,145 m ²	99	143	91	68
Hotel	857 rooms	114	125	111	132
<i>Total (B)</i>		<i>317</i>	<i>378</i>	<i>342</i>	<i>361</i>
<i>Total (A) – Total (B)</i>		<i>-49</i>	<i>-95</i>	<i>-120</i>	<i>-122</i>

3.1.3 As shown in **Table 3-2**, the traffic generations under the Proposed Scheme would be much lesser than the Hypothetical Scheme. Hence the traffic impacts imposed on the local road network under the Proposed Scheme would be much lesser and there should not be any insurmountable traffic impact imposed on the surrounding road network.

4. Conclusion

4.1.1 In light of findings of this traffic review, it is concluded that there is no insurmountable traffic impact imposed on the surrounding road network due to the proposed development. With all the transport facilities provided within the development sites in place, the proposed development under the Proposed Scheme is technically feasible in traffic terms.