

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 706 - HIGHWAYS

Transport - Roads

577TH - Interchange at Junction of Pok Fu Lam Road and Sassoon Road

Members are invited to recommend to Finance Committee the upgrading of **577TH** to Category A at an estimated cost of \$491.6 million in money-of-the-day prices for improving the junction of Pok Fu Lam Road and Sassoon Road.

PROBLEM

The existing capacity of the junction of Pok Fu Lam Road and Sassoon Road is insufficient to meet the anticipated traffic demands.

PROPOSAL

2. The Director of Highways (DH_y), with the support of the Secretary for Transport, proposes to upgrade **577TH** to Category A at an estimated cost of \$491.6 million in money-of-the-day (MOD) prices to carry out improvement works to the junction of Pok Fu Lam Road and Sassoon Road.

PROJECT SCOPE AND NATURE

3. The scope of the project comprises -

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- (a) realignment and widening of the section of Pok Fu Lam Road in front of the Queen Mary Hospital, involving the construction of a 301-metre long three-lane northbound carriageway (with 145 metres of it on bridge structures) and a 293-metre long two-lane southbound depressed carriageway (with 92 metres of it on bridge structures);
- (b) realignment of the upper section of Sassoon Road at its junction with Pok Fu Lam Road, involving the construction of a 108-metre long single two-lane carriageway, with 80 metres of it on bridge structures;
- (c) realignment of the upper section of Bisney Road at its junction with Pok Fu Lam Road, involving the construction of a 184-metre long single two-lane carriageway, with 108 metres of it on bridge structures;
- (d) construction of a 30-metre long single three-lane bridge linking the realigned Sassoon Road with the existing junction of Pok Fu Lam Road and the access road to the Queen Mary Hospital;
- (e) reconstruction and resurfacing of a 573-metre long section of the existing Pok Fu Lam Road, with 262 metres of it converted into a single-lane/two-lane slip road;
- (f) reprovisioning of a footbridge with lifts for the disabled across Pok Fu Lam Road;
- (g) reprovisioning of the Sassoon Road Rest Garden;
- (h) construction of footpaths and two bus bays;
- (i) associated slope works and retaining structures;
- (j) ancillary traffic aids, street lighting, landscaping, road and drainage works; and
- (k) provision of indirect noise mitigation measures to about 455 dwelling units of the University of Hong Kong (HKU) student residence halls in the vicinity affected by the junction improvement project.

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JUSTIFICATION

4. Pok Fu Lam Road is a primary distributor for the Southern District. It serves as a major link between the Aberdeen area and the Western District. There are currently two lanes in each direction at the junction of Pok Fu Lam Road and Sassoon Road. The junction is now operating close to capacity. With the Western Harbour Crossing now in operation and gradual completion of various developments¹ in the Aberdeen area, we expect that the traffic situation will continue to deteriorate with the traffic demand exceeding the junction capacity by 45% in 2006. Without the proposed interchange, the over-saturated junction would cause unbearable queuing and vehicular delay leading to gridlock of the local road network in Pok Fu Lam.

5. The proposed improvement scheme will eliminate, by grade separation, conflicts among pedestrians, local and through vehicular traffic at the junction. The new depressed section of Pok Fu Lam Road will allow uninterrupted north-south through traffic. We will reconstruct the existing section of Pok Fu Lam Road into a single-lane/two-lane slip road to serve local traffic proceeding to the hospital or using the new link bridge to Sassoon Road and Bisney Road. We will also reconstruct the existing footbridge with additional provision of lifts for pedestrians, including the disabled, to cross Pok Fu Lam Road. To tie-in with the new junction arrangement, we will have to re-align the upper section of Bisney Road and Sassoon Road, and re-provision the Sassoon Road Rest Garden. With the proposed improvement works in place, we expect the signalized junction connecting to Queen Mary Hospital will have a reserve capacity of 18% and the road will be operating with a volume/capacity² (V/C) ratio of 0.8 in 2011. In addition, the priority junction at the western end of the proposed Sassoon Road Bridge and Sassoon Road will only be operating at 70% of its capacity by then.

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¹ Including major residential development such as Marina Habitat in Ap Lei Chau Main Street, Home Ownership Scheme in Welfare Road, Private Sector Participation Schemes in Shum Wan Road, Aberdeen Praya Road and Ap Lei Chau Drive.

² The capacity here refers to the design capacity of the road. A volume/capacity (V/C) ratio equal to or less than 1.0 means that the road has sufficient capacity to cope with the volume of vehicular traffic under consideration. A V/C ratio above 1.0 indicates the onset of congestion; above 1.2 indicates more serious congestion with traffic speeds progressively deteriorating with further increase in traffic.

6. As a result of the proposed improvement works and eventual increase in traffic flow, about 455 dwelling units of the HKU student residence halls located in the vicinity will be exposed to noise levels higher than the upper limits stipulated in the Hong Kong Planning Standards and Guidelines (HKPSG). Due to prevailing site conditions, direct mitigation measures in the form of enclosures, roadside barriers and laying of noise reducing surfacing materials are neither effective nor practical to reduce the level of noise. We need to provide indirect noise mitigation measures in the form of window insulation and air-conditioning to these affected dwelling units.

FINANCIAL IMPLICATIONS

7. We estimate the cost of the works to be \$491.6 million in MOD prices, made up as follows -

	\$ million
(a) Roads and drainage works, including footpaths and bus bays	38.2
(b) Viaducts	199.1
(c) Demolition and reprovisioning of the existing footbridge with lifts	19.0
(d) Slope works and retaining structures	46.9
(e) Reprovisioning of Sassoon Road Rest Garden	5.3
(f) Traffic aids, street lighting and landscaping	5.9
(g) Indirect noise mitigation measures	6.0
(h) Consultants' fees for construction stage	7.4
(i) Resident site staff costs	29.7

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(j) Contingencies	39.7	
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Sub-total	397.2	(at December 1997 prices)
(k) Inflation allowance	94.4	
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Total	491.6	(in MOD prices)
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A breakdown by man-month of the estimate for consultants' fees is at the Enclosure.

8. Subject to approval, we will phase the expenditure as follows -

Year	\$ million (Dec 1997)	Price adjustment factor	\$ million (MOD)
1998 - 99	15.6	1.06000	16.5
1999 - 2000	147.3	1.14878	169.2
2000 - 01	146.0	1.24642	182.0
2001 - 02	49.3	1.35237	66.7
2002 - 03	39.0	1.46732	57.2
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	397.2		491.6
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9. We have derived the MOD estimate on the basis of the Government forecasts of trend labour and construction prices for the period 1998 to 2003. We will tender the works under a re-measurement contract because the quantities of

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the earthworks for depressed carriageways, foundation works for the elevated structures and slope works may vary depending on actual site conditions. The contract will provide for adjustments to tender price due to inflation because the contract period will exceed 21 months.

10. We estimate the additional annually recurrent expenditure to be \$1,180,000.

PUBLIC CONSULTATION

11. We consulted the Traffic and Transport Committee of the Southern District Board on 26 May 1997 on the proposed works. The Committee supported the project.

12. We also consulted the Recreation Select Committee of the Provisional Urban Council on 11 February 1998 on the temporary and permanent alienation of the Sassoon Road Rest Garden. The Committee approved the proposed alienation subject to re-provisioning of the rest garden.

13. We gazetted the proposed works under the Roads (Works, Use and Compensation) Ordinance on 12 September 1997 and received no objection. The Secretary for Transport authorized the proposed works on 12 December 1997.

ENVIRONMENTAL IMPLICATIONS

14. We completed an Environmental Impact Assessment (EIA) for the project in July 1997. The Advisory Council on the Environment endorsed the EIA report in August 1997. The EIA envisaged the traffic noise and construction noise from the project as major concerns.

15. The existing noise levels at the HKU student residence halls facing Pok Fu Lam Road already exceeds the established criteria. The EIA predicted that the traffic noise impacts would increase further by 2011. Direct noise

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mitigation measures are ineffective and impractical³ to abate the traffic noise impacts due to prevailing site conditions. The EIA recommended the provision of indirect technical remedies in the form of window insulation and air conditioning to the 455 affected dwelling units of the HKU student residence halls in the vicinity, at an estimated cost of \$6.0 million.

16. Out of the 455 affected dwelling units, the EIA identified that 30 units would be subject to unacceptable construction noise due to their close proximity to the construction site. We will arrange advance installation of window insulation to these units prior to commencement of the junction improvement works. We will also control noise, dust and site run-off nuisance during construction through implementation of mitigation measures in the works contract.

LAND ACQUISITION

17. We shall resume the Sassoon Road Electricity Sub-station with an area of about 55.7 square metres. The Director of Lands is arranging a replacement site for the Hong Kong Electric Company Limited (HKECL) in parallel with the resumption process. HKECL will arrange for decommissioning of the electric sub-station without affecting the power supply for the area. We also require clearance of squatters in part of the Tai Hau Wan Village, which will affect 57 residents from 21 households. The Director of Housing is processing the re-housing arrangement. We plan to have the required land available for the project in October 1998.

BACKGROUND INFORMATION

18. We upgraded this project to Category B in September 1995. In March 1996, we engaged consultants to undertake detailed investigation and design of the proposed interchange and charged the cost of \$12.7 million to

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³ Due to sight-line safety considerations and close proximity of the junction to the high rise HKU student residence halls in the vicinity, it is ineffective and impractical to provide noise barriers at the junction. The use of road enclosures will pose ventilation and fire fighting problems. Laying of noise reducing surfacing materials are also not suitable for the junction with a speed limit of only 50 kilometers per hour as the frequent turning and braking operations of vehicles will quickly wear out the road surfacing materials, hence diminishing the noise reducing effect.

Subhead **6100TX** "Highway works, studies and investigations for items selected in Category D of the Public Works Programme". In April 1998 we engaged consultants to carry out a detailed study for the indirect noise mitigation measures and charged the cost of \$1.18 million also to the same Subhead.

19. We have substantially completed the detailed design and working drawings for the proposed roadworks. We plan to start the roadworks as soon as practicable after funding approval, in any case not later than December 1998. The works will take some 32 months inclusive from start to finish. We aim to complete the construction works by July 2001.

20. To minimize disruption to traffic during construction, we will carry out the proposed works in stages and implement appropriate temporary traffic diversion schemes in consultation with the Police and the Transport Department to ensure that traffic flows will be maintained during all stages of construction.

Transport Bureau
July 1998

577TH - Interchange at Junction of Pok Fu Lam Road and Sassoon Road

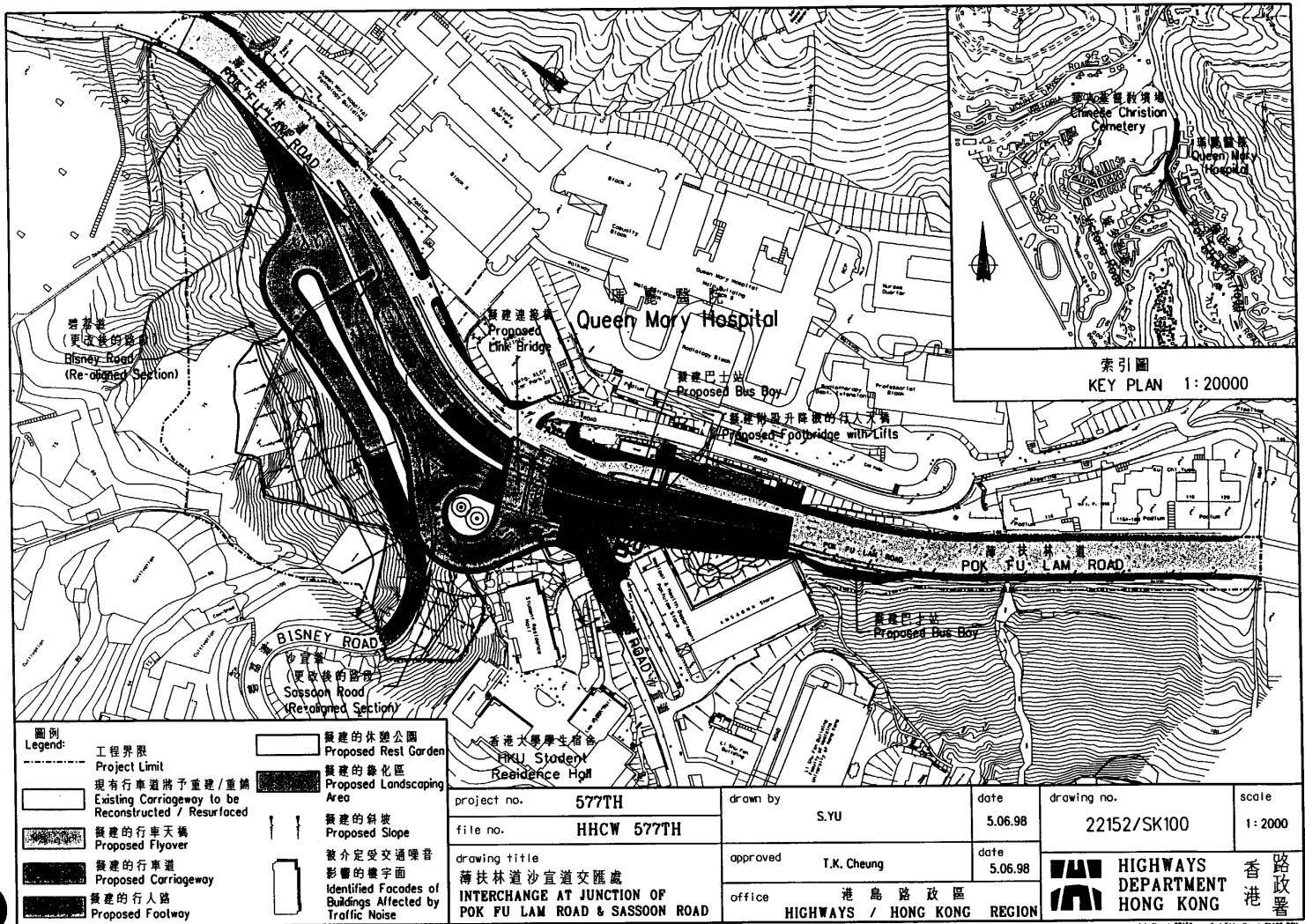
Breakdown of estimates for consultants' fees for the construction stage

Consultant's staff costs			Estimated Man- months	Average MPS* salary point	Multiplier factor	Estimated fee (\$ million)
(a)	Consultants' fee for project administration at construction stage	Professional	35	40	3.0	6.2
		Technical	17	16	3.0	1.2
(b)	Resident site staff employed by the consultants	Professional	91	40	2.1	11.3
		Technical	362	16	2.1	18.4
Total consultants' staff costs						37.1

* MPS = Master pay scale

Notes

1. A multiplier factor of 3 is applied to the average MPS point to arrive at the full staff costs including the consultants' overheads and profit, as the staff will be employed in the consultant's offices (At 1.4.97, MPS pt. 40 = \$59,210 p.m., and MPS pt. 20 = \$24,135 p.m.). A multiplier factor of 2.1 is adopted in the case of site staff employed by the consultants.
2. The figures given above are based on estimates prepared by the Director of Highways. We will only know the actual man months and actual fees when we have selected the consultants through the usual competitive lump sum fee bid system.



索引圖
KEY PLAN 1:20000

圖例
Legend:

	工程界限 Project Limit		擬建的休憩公園 Proposed Rest Garden
	現有行車道將予重建/重鋪 Existing Carriageway to be Reconstructed / Resurfaced		擬建的綠化區 Proposed Landscaping Area
	擬建的行車天橋 Proposed Flyover		擬建的斜坡 Proposed Slope
	擬建的行車道 Proposed Carriageway		被介定受交通噪音影響的樓宇面 Identified Facades of Buildings Affected by Traffic Noise
	擬建的行人路 Proposed Footway		

project no.	577TH	drawn by	S.YU	date	5.06.98	drawing no.	22152/SK100	scale	1:2000
file no.	HHCW 577TH	approved	T.K. Cheung	date	5.06.98	HIGHWAYS DEPARTMENT HONG KONG			
drawing title	薄扶林道沙宣道交匯處 INTERCHANGE AT JUNCTION OF POK FU LAM ROAD & SASSOON ROAD		office	港高路政區 HIGHWAYS / HONG KONG REGION					