

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 706 - HIGHWAYS Transport - Traffic Control 28TC - Speed Map Panels in the New Territories

Members are invited to recommend to Finance Committee the upgrading of **28TC** to Category A at an estimated cost of \$70.9 million in money-of-the-day prices for the construction of Speed Map Panels in the New Territories.

PROBLEM

We need to construct five Speed Map Panels (SMPs) in the New Territories to enable motorists travelling on the highway network from the New Territories to Kowloon to be provided with real-time traffic information to facilitate them to make informed route choices.

PROPOSAL

2. The Commissioner for Transport, with the support of the Secretary for Transport and Housing, proposes to upgrade **28TC** to Category A at an estimated cost of \$70.9 million in money-of-the-day (MOD) prices for the construction of five SMPs in the New Territories.

PROJECT SCOPE AND NATURE

3. The scope of **28TC** (the project) comprises –

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- (a) provision of five SMPs with estimated journey time information and congestion level shown by graphical means. Of these five SMPs, three will be in the New Territories East and two in the New Territories West (a list of the locations and a map showing the locations and the sign face details are at Enclosure 1 and Enclosure 2 respectively);
 - (b) installation of vehicle speed detectors along the concerned routes for collecting real-time data;
 - (c) installation of a central computer system for data processing, control and monitoring;
 - (d) installation of data communication equipment for transfer of data between the central computer system and field equipment;
 - (e) associated civil engineering works including overhead gantries, mounting poles, roadside cabinets, cable ducts; and
 - (f) provision of computer hardware and software for the dissemination of real-time traffic information through the Internet.

4. We plan to commence the proposed works in January 2010 for completion in April 2012.

JUSTIFICATION

5. We develop the Intelligent Transport Systems (ITS) and deploy advanced information and telecommunication technologies to enhance the safety, efficiency, reliability and user and environmental friendliness of Hong Kong's transport system. The Journey Time Indication System (JTIS) is a priority component under the ITS. We hope to be innovative on traffic management to maximise the utilisation of the limited road space in Hong Kong.

6. In 2003, we implemented the Journey Time Indication System on Hong Kong Island (JTIS Hong Kong) to inform motorists of the estimated journey time for travelling from Hong Kong Island to Kowloon via the three road-harbour crossings. Information collated from JTIS Hong Kong has also been disseminated to the public through an Internet Traffic Speed Map shown on Transport Department's (TD) website since August 2005. A before-and-after survey was conducted in December 2002 and January 2004 respectively. It was found that the average vehicle speed along the approach roads of road-harbour crossings on Hong Kong Island North generally increased by 4% after the implementation of JTIS Hong Kong.

7. TD also carried out an opinion survey in 2006 to ascertain the usefulness of JTIS. Of the 2 760 motorists who had made cross-harbour trips within a month before the survey, over 87% noticed the existence of the JTIS and amongst them, 64% considered that the system could assist them in choosing a cross-harbour route, and over 61% considered that the system also helped them in other aspects, such as estimating the arrival time and the level of congestion.

8. SMPs have been widely used in overseas countries to provide real time traffic information to facilitate motorists to make informed route choices. The roads ahead are shown as a route map on the SMP mounted on a gantry. Different colours are used to represent different congestion levels, for example, red and amber represent congested and slow traffic respectively. Overseas experience indicates that SMPs have brought about benefits of better distribution of traffic on roads, alleviation of congestion, and reduction in travelling time, fuel consumption and emission. Installation of SMPs in the New Territories will further strengthen our capacity to provide real-time traffic information to motorists.

FINANCIAL IMPLICATIONS

9. We estimate the cost of the project to be \$70.9 million in MOD prices (see paragraph 13 below), made up as follows –

	\$ million
(a) Supply and installation of electronic and electrical equipment	44.1
(i) SMPs	7.0
(ii) Vehicle detection equipment	9.0

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	\$ million	
(iii) Data communication equipment	9.0	
(iv) Central computer equipment	6.1	
(v) Related building services works, installation and commissioning of the system	13.0	
(b) Construction of sign gantries	10.0	
(c) Consultants' fees	1.4	
(i) contract administration	0.8	
(ii) management of resident site staff	0.6	
(d) Remuneration of resident site staff	5.2	
(e) Contingencies	5.4	
	<u>66.1</u>	(in September 2008 prices)
(f) Provision for price adjustment	<u>4.8</u>	
	<u>70.9</u>	(in MOD prices)

10. As regards paragraph 9(a) above, the cost is for the supply, installation, testing and commissioning of the SMP system, including vehicle detection equipment for collection of vehicle speed data; data communication equipment for transmitting detected vehicle speed data to the central computer system for calculation; the central computer system for vehicle speed and journey time calculation as well as for control and monitoring of all field equipment; SMPs to display the traffic condition in red or amber; and the related building services works.

11. As regards paragraph 9(b) above, the cost is for the construction of new sign gantries for installation of SMPs and vehicle detection equipment.

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12. As regards paragraph 9(c) and (d) above, the cost is for the employment of consultants for construction supervision and contract administration and resident site staff. A detailed breakdown of the estimates for the consultants' fees and resident site staff costs by man-months is at Enclosure 3.

13. Subject to approval, we will phase the expenditure as follows –

Year	\$ million (Sept 2008)	Price adjustment factor	\$ million (MOD)
2009 – 10	4.1	1.03500	4.2
2010 – 11	20.5	1.05570	21.6
2011 – 12	24.6	1.07681	26.5
2012 – 13	16.9	1.09835	18.6
	66.1		70.9

14. We have derived the MOD estimate on the basis of the Government's latest forecast of trend rate of change in the prices of public sector building and construction output for the period 2009 to 2013. We will invite tenders for the works under a lump-sum contract. The contract will provide for price adjustments.

15. We estimate that the total annual recurrent expenditure arising from this project to be \$6.6 million.

PUBLIC CONSULTATION

16. We consulted the Traffic and Transport Committees of the Sha Tin District Council, Tuen Mun District Council, Tai Po District Council and Yuen Long District Council in September 2008 on the project. Members supported the proposal, and requested that additional SMPs to be installed at various recommended locations. Representatives of TD explained that TD would explore the possibilities of installing more SMPs, when the current project is completed and TD has had a chance to examine their effectiveness. Members had no objection to TD's approach.

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17. We consulted the LegCo Panel on Transport on 20 March 2009. Members supported the proposal. We consulted the goods vehicle and taxi trades in April 2009. The trades supported the proposal.

ENVIRONMENTAL IMPLICATIONS

18. The project is not a designated project under Schedule 2 of the Environmental Impact Assessment Ordinance and an environmental permit is not required. The project will unlikely give rise to adverse environmental impacts. We have included in the project estimates the cost of implementing suitable mitigation measures to control the short-term environmental impacts during the construction works for the SMPs, ducting, vehicles detectors and controllers. These measures include the use of quiet equipment, careful scheduling of work, appropriate location of plant in relation to noise sensitive receivers as well as good site practices such as implementation of a temporary drainage system which includes silt traps, sedimentation pits for silty run-off, and infiltration pits for retaining concrete washings etc.

19. We have considered measures in the planning and design stages to reduce the generation of construction waste where possible. In particular, we will require the contractor to remove the precast concrete profile barriers of the central divider of the carriageways carefully for construction of sign gantry foundations and reuse them for reinstating the central divider after completion of the foundation works. In addition, we will require the contractor to reuse inert construction waste (e.g. excavated soil) on site or in other suitable construction sites as far as possible, in order to minimise the disposal of inert construction waste to public fill reception facilities¹. We will encourage the contractor to maximize the use of recycled or recyclable inert construction waste, as well as the use of non-timber formwork to further minimize the generation of construction waste.

20. We will also require the contractor to submit for approval a plan setting out the waste management measures, which will include appropriate mitigation means to avoid, reduce, reuse and recycle inert construction waste. We will ensure that the day-to-day operations on site comply with the approved plan. We will require the contractor to separate the inert portion from non-inert construction waste on site for disposal at appropriate facilities. We will control the disposal of inert construction waste and non-inert construction waste to public fill reception facilities and landfills respectively through a trip-ticket system.

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¹ Public fill reception facilities are specified in Schedule 4 of the Waste Disposal (Charges for Disposal of Construction Waste) Regulation. Disposal of inert construction waste in public fill reception facilities requires a licence issued by the Director of Civil Engineering and Development.

21. We estimate that the project will generate about 1 800 tonnes of construction waste in total. Of these, we will reuse about 900 tonnes (50.0%) of inert construction waste on site and deliver 890 tonnes (49.4%) of inert construction waste to public fill reception facilities for subsequent reuse. In addition, we will dispose of 10 tonnes (0.6%) of non-inert construction waste at landfills. The total cost for accommodating construction waste at public fill reception facilities and landfill sites is estimated to be \$25,280 for this project (based on an unit cost of \$27/tonne for disposal at public fill reception facilities and \$125/tonne² at landfills).

HERITAGE IMPLICATIONS

22. The project will not affect any heritage site, i.e. all declared monuments, proposed monuments, graded historic sites/buildings, sites of archaeological interest and Government historic sites identified by the Antiquities and Monuments Office.

LAND ACQUISITION

23. The project does not require any land acquisition.

BACKGROUND INFORMATION

24. We upgraded **28TC** to Category B in September 2007.

25. We employed a consultant in April 2009 to carry out the design and construction consultancy of the project. The consultancy fee for the design stage of \$1.03 million has been charged to **Subhead 6100TX** "Highway works, studies and investigations for items in Category D of the Public Works Programme".

26. The project will not involve any tree removal or planting proposals.

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² This estimate has taken into account the cost for developing, operating and restoring the landfills after they are filled and the aftercare required. It does not include the land opportunity cost for existing landfill sites (which is estimated at \$90/m³), nor the cost to provide new landfills, (which is likely to be more expensive) when the existing ones are filled.

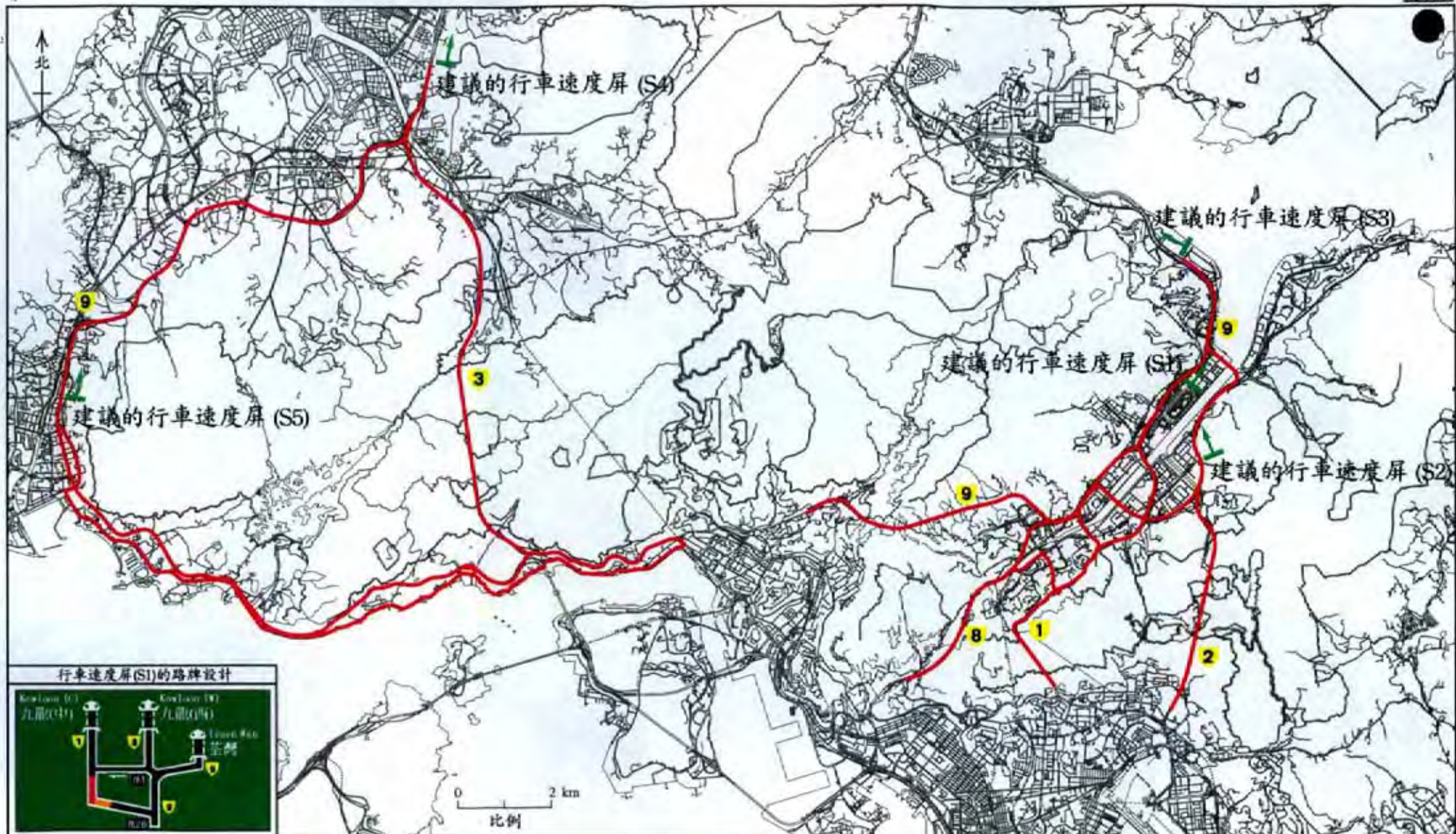
27. We estimate that the project will create about 29 jobs (22 for labourers and another seven for professional/technical staff), providing a total employment of 650 man-months.




Transport and Housing Bureau
May 2009

28TC – Speed Map Panels in the New Territories

Locations of Proposed Speed Map Panels

Region	Speed Map Panel Number	Proposed Location
NT East	S1	Tai Po Road - Sha Tin Section southbound near the Racecourse
	S2	Tate's Cairn Highway southbound near Shek Mun
	S3	Tolo Highway southbound near the Science Park
NT West	S4	San Tin Highway southbound near the Fairview Park
	S5	Tuen Mun Road southbound near Tuen Mun San Hui



- 圖例：
-  行車速度屏的建議位置
 -  計劃設置車速偵測設備的路線
 -  快速公路的主幹線編號

題目：

**工務計劃項目第6028TC號 - 新界區行車速度屏
行車速度屏的建議位置**

部門：

交通及運輸調查部



運輸署
Transport Department

28TC – Speed Map Panels in the New Territories

**Breakdown of estimates for consultants’ fees and resident site staff costs
(in September 2008 prices)**

		Estimated man- months	Average MPS* salary point	Multiplier factor (Note 1)	Estimated fees (\$million)
(a) Consultants’ fees for contract administration (Note 2)	Professional	-	-	-	0.6
	Technical	-	-	-	0.2
				Sub-total	0.8
(b) Resident site staff costs (Note 3)	Professional	44	38	1.6	4.3
	Technical	48	14	1.6	1.5
				Sub-total	5.8
Comprising –					
(i) Consultants’ fees for management of resident site staff					0.6
(ii) Remuneration of resident site staff					5.2
				Total	6.6

*MPS = Master Pay Scale

Notes

1. A multiplier factor of 1.6 is applied to the average MPS point to arrive at the cost of resident site staff supplied by the consultants. (As at 1 April 2008, MPS pt. 38 = \$60,535 per month and MPS pt. 14 = \$19,835 per month)
2. The consultants’ fees for construction supervision and contract administration are estimated in accordance with the Agreement No. CE 50/2008 (TT) titled “Speed Map Panels in the New Territories – Design and Construction”. The construction phase of the assignment will only be executed subject to Finance Committee’s approval to upgrade 28TC to Category A.
3. We will only know the actual man months and actual costs after completion of the construction works.