

**For discussion
on 13 June 2001**

EC(2001-02)11

ITEM FOR ESTABLISHMENT SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 186 – TRANSPORT DEPARTMENT Subhead 000 Operational Expenses

Members are invited to recommend to Finance Committee the creation of the following supernumerary posts in the Technical Services Branch of Transport Department –

1 Chief Engineer
(D1) (\$98,250 - \$104,250)

for a period of five years

1 Chief Systems Manager
(D1) (\$98,250 - \$104,250)

for a period of three years.

PROBLEM

There is inadequate directorate support in the Technical Services Branch of Transport Department (TD) to cope effectively with the increased complexity and volume of work on the development and implementation of Intelligent Transport Systems (ITS) and increased demand on the use and application of Information Systems (IS).

/PROPOSAL

PROPOSAL

2. We propose to strengthen the directorate structure of the Technical Services Branch of TD by -

- (a) creating one supernumerary post of Chief Engineer (CE) (D1) for a period of five years to oversee issues relating particularly to the application of ITS; and
- (b) creating one supernumerary post of Chief Systems Manager (CSM) (D1) for a period of three years to assist in the formulation of the IS Strategy, to advise on the effective use and management of information technology and to oversee the implementation of the IS Strategy and the on-going support of IS related services.

JUSTIFICATION

3. Existing transport information, such as road accidents, road works and traffic diversion measures, is mostly paper-based or kept in isolated systems, and is not fully exploited. Traffic in Hong Kong is managed and monitored by computerized traffic signals operated through Area Traffic Control (ATC) systems and Traffic Control & Surveillance (TCS) facilities installed on highways, such as closed circuit television systems, variable message signs and lane control signals. However, the present ATC systems only cover the urban areas and the New Towns of Tsuen Wan/Kwai Tsing and Shatin/Ma On Shan, and the TCS facilities are only installed on limited sections of expressways such as Tuen Mun Road, North Lantau Expressway and Western Kowloon Expressway. These systems are controlled by their respective control centres with limited linkage among them. As a result, road users are not aware of real-time road conditions until they are at the spot. This could result in unnecessary congestion and frustration.

4. It is Government's policy to promote wide application of innovation and technology in order to add value to our products and services. On transport front, we need to pursue ITS to achieve the policy objective. The benefits to the public from implementing ITS will include savings in travelling time, increase in road capacity and reduction in the occurrence of traffic accidents. ITS can further enhance support to trade and commercial activities through better fleet management and also

/alleviate

alleviate pressure for constructing new transport infrastructure. We are lagging behind as compared with other developed countries and some Asian countries such as Japan, Korea and Singapore where ITS is being actively pursued.

ITS Strategy

5. In view of the above, TD initiated an in-house ITS Strategy Review Study in May 2000 to develop a long-term ITS deployment plan for Hong Kong. The Study examined the technical, administrative and financial requirements of implementing an ITS Strategy in Hong Kong to ensure that different systems developed under the Strategy are compatible and co-ordinated with each other, and that seamless integrated services can be provided to all road users effectively and efficiently. The Study, completed earlier this year, recommended the establishment of a Transport Information System (TIS) and the adoption of a new Traffic Management Framework. It also suggested that the private sector be encouraged to make use of these systems to provide tailor-made services to individual road users. The key findings and recommendations of the ITS Strategy Review, as described in Encl. 1 Enclosure 1, were strongly supported by the Transport Advisory Committee at its meeting held on 27 February 2001. The proposed ITS Strategy was then presented to the Legislative Council Panel on Transport on 16 March 2001. Members generally supported the deployment of advanced technologies to enhance the provision of transport information and traffic management, but considered that the proposed implementation programme, as shown in Encl. 2 Enclosure 2, was too conservative and should be advanced as far as possible.

6. We therefore need to take urgent action to enhance the existing ITS applications on ATC and TCS systems, to develop new initiatives such as the TIS, Journey Time Indication System (JTIS) and Traffic Management and Information Centre (TMIC), and to facilitate the implementation of value-added services such as car navigation and fleet management in a co-ordinated and systematic manner under the ITS Strategy. The funding for the implementation of TIS and JTIS was approved by the Finance Committee on 1 June 2001. The success of implementing ITS in Hong Kong will depend on the deployment of continuously developing technologies and the capability to meeting changing market demands. According to overseas experience, the time frame is in the order of five to ten years for significant benefits to be realized by the implementation of similar ITS Strategy.

/Information

Information Systems Strategy

7. At the same time, we also conducted an Information Systems (IS) Strategy Study in 2000 which recommended, in the light of the current policy and operation of TD and the likely technological options, an Information Systems Strategy be implemented to meet TD's information needs from 2001 to 2005 and beyond. The Study provided a strategy that will align IS in support of our business goal of providing the World's Best Transport System. It recommended that the major projects in the pipeline including the TIS, TMIC and Vehicles and Drivers Licensing Integrated Data (VALID) System¹ should form the baseline of the strategy for the next few years. Document management, knowledge management, automatic permit processing, human resources management and co-ordinating road works across departments were identified as possible quick wins for implementation in the next two years. In addition, another 18 new initiatives for better planning, better regulating, better services, better administration and better partnership were recommended for further consideration and staged development from 2002 to 2005. The successful implementation of the IS Strategy will enable TD to transform its internal business operations and to deliver public services through electronic means in meeting the e-Government policy. Details of the proposed projects under the ISSS are at Enclosure 3.

Encl. 3

8. Based on the current organisational structure, TD will not be able to fulfill its functions satisfactorily given the increasingly complex issues relating particularly to the application of ITS and IS. Additional senior level staff support will be required to oversee the development and implementation of the above projects.

Creation of one Chief Engineer Post

9. In order to ensure that the ITS Strategy would be implemented smoothly and effectively, we have to closely monitor and properly manage the action plan including programmes for the key projects, associated resource requirements, division of responsibilities, collaboration among concerned parties and other related issues. We need a directorate officer dedicated to these tasks by giving professional advice and direction on what would be the best and appropriate options for Hong Kong. He will provide guidance for the detailed designs of the proposed applications/systems including functional and operational requirements, system specifications, interfacing standards, provisions for integration and data exchange.

/He

¹ The VALID System is a computer based information system for registration and licensing of vehicles and drivers.

He also has to develop programmes for delivering the key projects and promoting the application of ITS in Hong Kong by both Government and the private sector in the coming years.

10. Close liaison and co-ordination with other Government departments, transport operators, system suppliers/integrators and service providers at directorate level are required so as to agree upon the division of responsibilities, to encourage and facilitate collaboration for research and development and provision of services, and most importantly to avoid any duplication and waste of effort among concerned parties. The proposed CE post will represent TD at forums and committee meetings to explain project related issues, co-ordinate and liaise with other branches within TD as well as external consultants, organizations, agents and the general public to resolve any issues related to the development and implementation of ITS in Hong Kong. Such actions would be required continuously for facilitating the implementation of the key projects.

11. The proposed CE post will be responsible for developing and overseeing the implementation of all on-going and proposed ITS projects. Guidance from a directorate officer is also required to follow-up on other related issues such as institutional arrangement, protection of intellectual property, privacy, etc. He will be also involved in the drafting of new legislation relating to traffic control/management, safety/enforcement, installation of in-vehicle devices. In addition, public acceptance is essential for the success of the proposed ITS Strategy. Adequate consultation with District Councils, Transport Advisory Committee, Transport Panel and other concerned parties on the proposed ITS Strategy and key projects on a continuous basis is therefore required in promoting and delivering the strategy.

12. The volume, complexity and commercial sensitivity of the ITS related tasks have grown tremendously as a result of developments over the past years. Rising expectations from both the public and commercial sectors for using new advanced technologies to improve the effectiveness of the transport system and hence the competitiveness of the Hong Kong economy have posed great demands for the enhancement of existing and provision of new ITS services. Queries on related subjects will have to be answered promptly and inputs at directorate level are essential to avoid any confusion or misunderstanding. As the timeframe for the major ITS projects will span from 2001 to 2006, a supernumerary CE post in the Intelligent Transport Division, designated as CE (Intelligent Transport), for five years is recommended.

/Creation

Creation of one Chief Systems Manager post

13. In order to implement the IS Strategy mentioned above, a directorate officer competent in information technologies and project management is required in the Information Services Division to establish the organizational and system requirements for employing information technology to enhance the business processes of TD. Currently, the IS support organization in TD is scattered and thin. The staff under the Information Technology Services Department mainly provide support to the maintenance and operation of the existing VALID licensing system. TD's own staff in Computer Services Section, currently under Intelligent Transport Division provide IS services for the remaining administrative computer system. There is limited complement of IS professionals, tools, methods or practices to plan and implement major IS related projects. With the wider application of information technology to enhance the business processes of TD and in the development of ITS, IS is fundamental to TD's future. A sound and well organized IS delivery and service structure will assist TD in meeting its vision. Accordingly, the IS Strategy Study recommended that TD should form an IS organization that can plan, monitor and control the significant investment on the IS related projects.

14. The above task requires an officer with extensive administrative and managerial experience in the deployment and usage of information technology, business process re-engineering and related skills. We need a directorate officer at CSM rank with the technical competency and capability dedicated to providing professional IS advice and direction to the TD's senior management in meeting the IS needs of TD and what would be the best and appropriate information technology for the transport systems of Hong Kong. He will be supported by the staff to be transferred from the Computer Services Section under the Intelligent Transport Division. The proposed CSM will provide IS guidance and support at directorate level for the implementation of the IS Strategy, quick wins and new initiatives recommended in the ISSS and the on-going support of IS related services. He will also provide the IS technical expertise and advice to all IS related projects in the pipeline. The proposed CSM will represent TD at various forums and project steering committees to provide information technology advice, co-ordinate and liaise with other branches within TD as well as other departments, organizations, business partners and general public to resolve any issues related to the development and implementation of IS Strategy for TD.

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15. The duties of the proposed CE and CSM posts are very different in nature. They require professional experience and knowledge in traffic engineering and information systems technology respectively. The CSM post will be fully engaged in the planning and implementation of IS initiatives within TD while the CE post will take up duties in relation to the implementation of the ITS Strategy that will involve other Government departments, transport operators, system suppliers/integrators and service providers on a wide range of issues as described above. The CSM will also provide advice to the CE regarding issues on IS technology and management with the consideration of the functional and operational requirements set out by the CE.

16. We propose that the CSM post be created for three years to develop our initial plans for IS in TD. During that time, we will consider further how our information technology function should be delivered in the future, including the balance between in-house resources and staff employed on contract terms.

17. The proposed CE and CSM posts will report to the Assistant Commissioner for Transport/Technical Services (AC/TS). The existing and proposed organization chart of the Technical Services Branch is shown at Enclosure 4 and the job descriptions of the proposed CE and CSM posts are at Enclosures 5 and 6 respectively.

Encl. 4
Encls.5&6

OTHER ALTERNATIVES CONSIDERED

18. We have also examined critically the possibility of assigning the responsibilities to the present six CEs of the other divisions but consider this not feasible as all of them do not have spare capacity to undertake the new activities set out above. CE/Strategic Roads and CE/Priority Railways are already fully engaged in overseeing the planning and implementation of strategic road projects and railway projects respectively. CE/Traffic and Transport Surveys looks after the base district traffic modeling, parking demand study and various traffic and transport studies related to land supply matters. CE/Transport Planning is responsible for the planning of the transport infrastructure. CE/Road Safety & Standards covers road safety and standards issues and provides support to the Road Safety Council in formulating road safety policies and strategies. The remaining CE/Traffic Control deals with the planning and implementation of new area traffic control and closed circuit television systems and the operation and expansion of the existing systems. They are all fully engaged in their own schedules of duties.

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19. In view of the increasing complexity and volume of work faced by the Technical Services Branch, we consider that AC/TS will not be able to oversee and manage all the important activities effectively without additional support at the directorate level.

FINANCIAL IMPLICATIONS

20. The additional notional annual salary cost of this proposal at mid-point is –

Supernumerary post	\$	No of posts
CE	1,213,200	1
CSM	1,213,200	1
Total	<u>2,426,400</u>	<u>2</u>

21. The full annual average staff cost of the proposal, including salaries and staff on-costs, is \$4,113,168. We have included sufficient provision in the 2001-2002 Estimates to meet the cost of this proposal.

BACKGROUND INFORMATION

22. In order to cope with the increasing workload with respect to the employment of advanced technology in traffic management, we created under delegated authority a supernumerary Chief Engineer post on two occasions, each for a period of six months. For the first occasion from 1 July to 30 December 2000, the supernumerary CE was mainly responsible for directing and managing the in-house ITS Strategy Review and the preliminary project feasibility study for the TMIC. For the second occasion from 9 February to 8 August 2001, the supernumerary CE is mainly responsible for formulating and promoting action plans for the implementation of key projects under the proposed ITS Strategy including JTIS, TIS and TMIC, which are policy commitments for completion in 2002, 2003 and 2006 respectively.

23. At the same time, in order to cope with the urgent need for establishing an IS organization in TD as recommended by the ISSS, we also created under

/delegated

delegated authority a supernumerary CSM post for a period of six months from 2 January 2001 to 1 July 2001, to undertake the tasks of steering the way forward on the implementation of IS Strategy and to establish a well defined IS organization adequately resourced and strengthened to implement IS enabled change opportunities identified in the IS Strategy Study.

24. We circulated a paper on the creation of the proposed CE and CSM posts to the Legislative Council Panel on Transport on 27 April 2001. The Panel discussed the paper at the meeting on 18 May 2001. The Panel in general supported the proposal.

CIVIL SERVICE BUREAU COMMENTS

25. The Administration has considered carefully alternative means to provide the required directorate support to meet the service needs bearing in mind the need to ensure efficiency and effectiveness. The Administration considers this proposal appropriate and justified. The Civil Service Bureau considers the grading and ranking of the posts appropriate. The total number of established directorate posts in the TD as at 1 June 2001 is 27.

ADVICE OF THE STANDING COMMITTEE ON DIRECTORATE SALARIES AND CONDITIONS OF SERVICE

26. As the posts are proposed on a supernumerary basis, their creation, if approved, will be reported to the Standing Committee on Directorate Salaries and Conditions of Service in accordance with the agreed procedure.

Transport Bureau
June 2001

Key Findings and Recommendations of the Intelligent Transport Systems Strategy Review

The Intelligent Transport Systems (ITS) Strategy Review Study recommends the establishment of a **Transport Information System** and the adoption of a new **Traffic Management Framework** to improve the situation. It further suggests that the **private sector initiatives** be encouraged to make use of these systems to provide tailor-made services to individual road users.

A. Transport Information System

2. The Transport Information System (TIS) is a central database responsible for the collection, processing, analysis and dissemination of comprehensive transport information including traffic conditions, progress of road works, traffic diversion measures, public transport services, and traffic incident investigation. The information would be provided to the public directly or through service providers via variable message signs on roads, internet, media, and mobile phones. The TIS supports real-time updating and retrieval of traffic information. The advantages of TIS include –

- (a) Government agencies would be able to plan and manage their transport-related operations more effectively. This means more efficient traffic regulation/diversion by the Police and better co-ordinated road maintenance works by Highways Department. Fire Services Department and the Police will also find it easier to avoid congestion points when deploying their emergency vehicles;
- (b) transport operators such as bus companies, railway companies, tunnel operators and commercial vehicle fleet operators would be able to adjust their operation instantaneously having regard to any changes in the traffic conditions; and
- (c) third-party service providers would be able to develop applications for fleet managers or individual road users by providing them with value-added traffic information via mobile phones, or in-vehicle reception units.

B. Traffic Management Framework

3. In Hong Kong, traffic is managed and monitored by computerised traffic signals operated through Area Traffic Control (ATC) systems, and Traffic Control & Surveillance (TCS) facilities installed on highways, such as closed circuit television (CCTV) systems, variable message signs and lane control signals.

4. However, the present ATC systems only cover the urban areas and the New Towns of Tsuen Wan/Kwai Tsing and Shatin/Ma On Shan, and the TCS facilities are only installed on limited sections of expressways such as Tuen Mun Road, North Lantau Expressway and Western Kowloon Expressway. These systems are controlled by their respective control centres with limited linkage among them.

5. To improve the situation, the ITS Strategy Review Study recommends that –

- (a) ATC systems should be extended to cover all New Towns;
- (b) comprehensive traffic control and surveillance facilities including CCTV cameras, variable message signs and lane control signals should be installed on all existing and new expressways; and
- (c) all existing area traffic and expressways control centres, as well as TD's Emergency Transport Co-ordination Centre, should be co-located under a single centre, the Traffic Management and Information Centre (TMIC), for more effective coordination of traffic and incident management of the whole territory.

6. The TMIC would in future replace the existing control centres and take direct control of all existing and future ATC systems and TCS facilities. In case of emergency and major accident with widespread impact, the TMIC would also be responsible for co-ordinating with tunnel/bridge operators, the Police, other government departments and transport operators, in managing traffic.

Private Sector Initiatives

7. TIS and TMIC would form part of the transport infrastructure to be provided by the Government to make our transport system more efficient and user-friendly. In addition, they would provide the necessary information to facilitate commercial utilisation such as development of navigational guidance systems for motorists and fleet management systems for public transport and freight operators. With the emergence of the 3rd Generation Mobile Phone, it is expected that general information packages and personalized services for individual road users would also become more popular.

Benefits of Intelligent Transport Systems

8. The implementation of ITS would bring about significant benefits to our society. With more effective and efficient transport management, road capacity would increase and travelling time could be saved. Provision of ITS to produce more road capacity is also a more cost-effective alternative to the building of new roads.

/Accordinging

According to overseas experience, existing road capacity could be increased by about 20% with the full implementation of ITS. To achieve the same result by building new roads in Hong Kong, the construction costs alone (without taking into account land costs, technical feasibility and the environmental impacts) would cost at least \$30 billion.

9. In terms of travelling time, overseas experience shows reductions ranging between 20% and 40%. Assuming similar reductions in Hong Kong, the estimated annual economic benefit would be in the order of \$14 billion to \$28 billion. As a result of reduction in travelling time, fuel consumption and therefore vehicle emissions would also decrease. This is in line with our objective of reducing roadside air pollution.

10. With improved traffic control, automated enforcement and co-ordinated incident management, ITS could also reduce the occurrence of traffic accidents and lessen the probability of fatality arising from traffic accidents, making our transportation system much safer for all road users. According to overseas experience, a reduction of 15% in accident rate could be achieved, avoiding a loss of \$175 million annually.

11. Implementation of ITS will further enhance support to trade and commercial activities through better fleet management, hence reducing operating costs and increasing productivity. The whole community will enjoy better services provided by a smarter transportation system. Implementation of ITS in Hong Kong could also help alleviate pressure for constructing new transport infrastructure which will contribute to sustainability in the future development of Hong Kong.

12. ITS is now an established trend in developed countries like the U.S.A., U.K. and Japan. Development of ITS in other Asian countries, such as Singapore, South Korea and Mainland China, is also advancing rapidly. Hong Kong would need to press ahead to maintain her competitiveness. It will also enhance the image of Hong Kong as a leading international city.

Implementation Plan

13. Implementation of the TIS is scheduled to commence in late 2001. As part of the project, a public transport inquiry sub-system will be developed to encourage the use of public transport services and to facilitate pre-trip planning by passengers. Information on routes, stops, schedule and fare level of public transport services will be put under one system for free and easy access by passengers through Government Web pages. This sub-system would be ready for public use by early 2003 with the whole system to be completed in 2003-2004.

14. Extension of the ATC System to cover the remaining New Towns will be implemented in phases from 2001. The System will first be extended to Tai Po and North Districts at an estimated cost of \$97 million. System design and installation works are expected to start in September 2001 for completion in November 2003. Extension to Tuen Mun and Yuen Long will then follow with works to start in 2003 for completion in 2005.

15. Apart from the extension of the ATC System, journey time indicators on approach roads to cross-harbour tunnels and strategic routes would also be installed in 2002-2003 at an estimated cost of \$20 million. The indicators aim to advise motorists of traffic conditions on alternative routes so that they could make an informed choice on their route well ahead of critical diversion points.

16. The provision of comprehensive TCS facilities will become a standard feature of all new expressways and trunk roads. As regards existing expressways, the provision of such facilities will be implemented in stages in conjunction with relevant road improvement works. The first project covers the Tolo Highway which is being implemented in phases from 2001. By 2010, it is anticipated that most of the major expressways will be covered with comprehensive TCS facilities.

17. The preliminary project feasibility study of the TMIC will be completed shortly. We plan to start the design and construction works in 2002 and the Centre would start operation in 2006. Once the TMIC is in operation, real-time traffic information would be fed into the TIS. Apart from the TMIC, instantaneous information feedback from the transport service operators, tunnel operators and other commercial fleet management would also be fed into the system to ensure that road users have access to comprehensive and updated information.

Implementation Schedule of the Proposed ITS Strategy

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Transport Information System		1								
Area Traffic Control System		2								
Journey Time Indication System		3								
Traffic Control and Surveillance Facilities		4								
Traffic Management and Information Centre		5								

 Committed schedule

Notes:

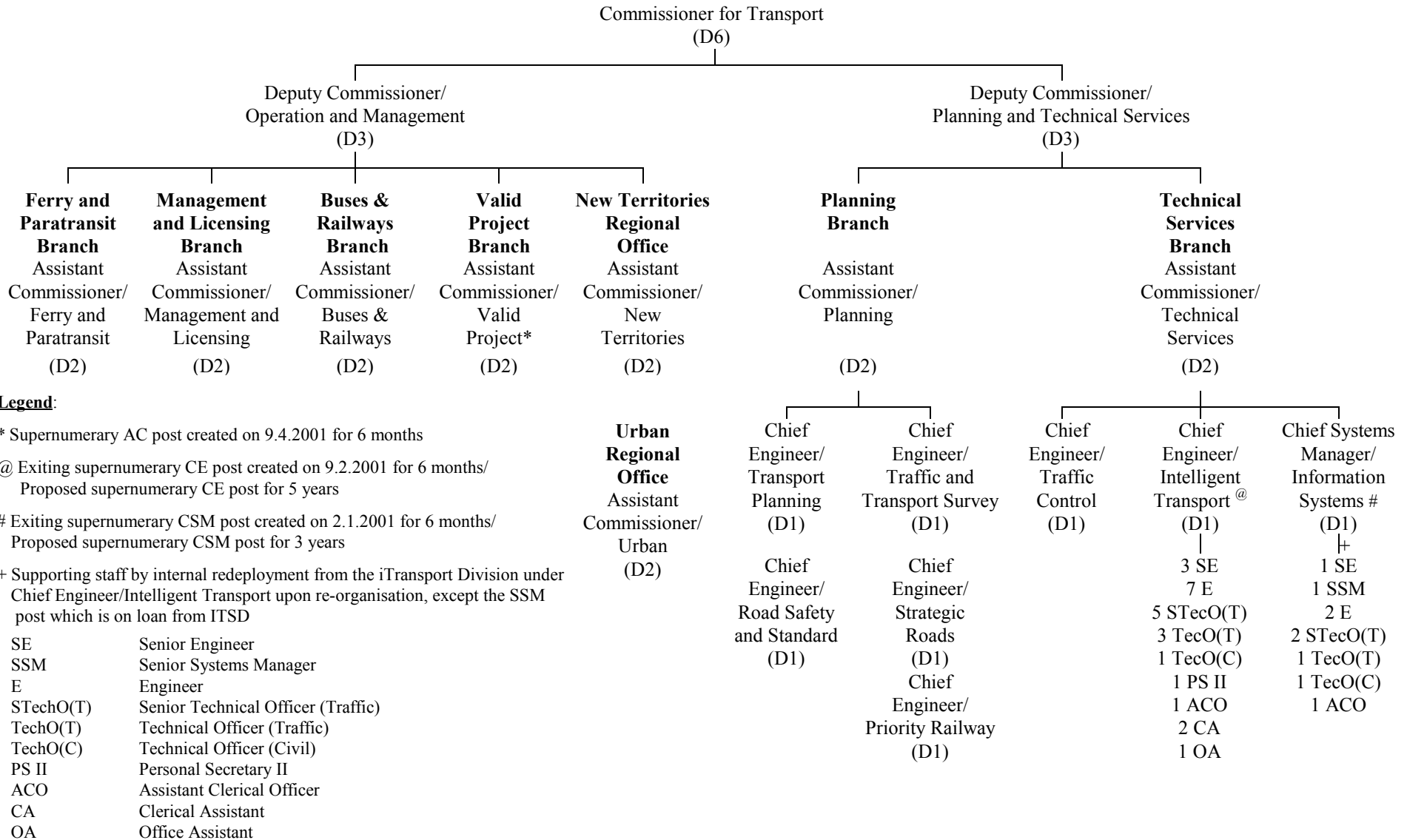
1. Implementation of Phases I, II and III of the Transport Information System
2. Tai Po/North District and Tuen Mun/Yuen Long Area Traffic Control Systems
3. Journey Time Indication System on Hong Kong Island for approach roads to the three cross-harbour tunnels
4. Provision of Traffic Control and Surveillance facilities on Tolo Highway
5. Implementation of the Traffic Management and Information Centre

Enclosure 3 to EC(2001-02)11

Projects proposed under Information Systems Strategy Study (ISSS)

Programme Area	Project Title	Major Components
Better planning	Public transport operators data capturing and collection system	Public transport operators database; and transport planning system
	Optimization of numbers of buses	Bus optimization modeling system; bus operators database; and demand forecasting system
	Give priority to pedestrian scheme	Pedestrian survey system; and pedestrian planning system
	Give priority to railways scheme	Inter-modal integration modeling system
Better regulation	Public transport operator service level monitoring system	Service level monitoring system
Better services	Re-engineering VALID and licensing processes	VALID Repository and licensing system
	Automate permit processing	Permit management system
Better administration	Knowledge management system	Enhancement of existing database system for better reuse of knowledge; and integrated knowledge management system
	Document management system	Document management, imaging and data capture system
	Management information system	Executive decision support system; and strategic planning system
	Human resources management system	Human resources management system
Better Partnership	Electronic Services Delivery (ESD) for transport users and partners	Development of strategy, criteria, business and technical standard to drive ESD opportunities for transport users and partners
	Coordination of road works across departments	Integration with road works system; workflow management system; and asset maintenance scheduling system
Information Technology (IT) Architecture	Technical study on the IT infrastructure of TD	Define the IT architecture, standards, procedures and methodology to guide implementation of the IT changes initiatives identified under the ISSS

Existing and Proposed Organisation Chart of the Technical Services Branch of Transport Department



Proposed Job Description for Chief Engineer (Intelligent Transport)

Rank: Chief Engineer (D1)

Main Duties and Responsibilities –

Responsible to the Assistant Commissioner for Transport/Technical Services (D2), for the following duties -

- (1) to promote and execute action plans for implementing the key projects under the proposed Intelligent Transport Systems (ITS) Strategy;
- (2) to promote the development of ITS applications through public/private collaboration;
- (3) to provide guidance for the implementation of the key projects under the proposed ITS Strategy including Transport Information System, Traffic Management and Information Centre and Journey Time Indication System;
- (4) to co-ordinate and liaise with other branches in Transport Department, other government departments, transport operators, system suppliers/integrators and service providers for the implementation of the key projects;
- (5) to plan and co-ordinate resources for new initiatives of ITS applications;
- (6) to plan and implement the provision of Traffic Control and Surveillance facilities on the existing Strategic Road Network;
- (7) to provide traffic engineering input for the development of information technology in Transport Department;
- (8) to consult Transport Advisory Committee, Legislative Council Panel on Transport and other concerned parties, and attend meetings as necessary, on the recommendations of the ITS Strategy Review; and
- (9) to oversee the administration of the Intelligent Transport Division.

Proposed Job Description for Chief Systems Manager

Rank: Chief Systems Manager (D1)

Main Duties and Responsibilities –

Responsible to the Assistant Commissioner for Transport/Technical Services (D2), for the following duties -

- (1) to provide advice on all Information Systems (IS) related technical and policy matters and technology management in TD;
- (2) to plan and co-ordinate IS budget, resources and activities for TD to ensure all activities are properly coordinated and all IS practices are correct and appropriate to TD;
- (3) to plan and co-ordinate the development and implementation of new systems and the effective use and maintenance of existing systems;
- (4) to oversee the implementation of the TD's IS infrastructure in accordance with established policies and standards;
- (5) Co-ordinate IS planning and advice on IS architecture to ensure architectural compliance, maintenance of architectures, standards, principles, IS policies and the overall technical integrity of IS;
- (6) to liaise with TD's commercial and government partners in development of Electronic Services Delivery and other IS initiatives;
- (7) to provide IS expert advice to all transport related projects in the pipeline including TIS, TMIC and VALID Repository; and
- (8) to administer the Information Systems Division to provide operational and technical IS services and support to other branches in TD.