

ITEM FOR ESTABLISHMENT SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 60 - HIGHWAYS DEPARTMENT Subhead 001 Salaries

Members are invited to recommend to Finance Committee -

(a) the creation of the following permanent posts -

1 Principal Government Engineer
(D3) (\$127,900 - \$135,550)

1 Government Engineer
(D2) (\$110,000 - \$116,800)

4 Chief Engineer
(D1) (\$92,650 - \$98,300)

(b) the retention of the following supernumerary post for nine months up to 31 March 1999

1 Chief Engineer
(D1) (\$92,650 - \$98,300)

PROBLEM

The Director of Highways (D of Hy) requires dedicated directorate support on project management duties for major highways projects. He also needs to retain one supernumerary post of Chief Engineer to oversee and manage the Route 3 Country Park Section project until its completion.

/PROPOSAL

PROPOSAL

2. We propose to -

- (a) create one permanent post of Principal Government Engineer (PGE) (D3) to head the Major Works Project Management Office (MWPMO);
- (b) create one permanent post of Government Engineer (GE) (D2) to assist the PGE in running the MWPMO;
- (c) create four permanent posts of Chief Engineer (CE) (D1), each to head a new Division responsible for a number of major highway projects; and
- (d) retain one supernumerary post of Chief Engineer (CE) (D1) for nine months up to 31 March 1999 to continue overseeing the Route 3 Country Park Section and Pok Oi Flyover projects and to deal with the residual works of the Western Harbour Crossing Project.

JUSTIFICATION

3. The Chief Executive announced in his 1997 Policy Address that the Administration is committed to developing plans for a number of major highway projects in the next few years in order to meet the anticipated increase in traffic generated by the new developments in the territory and the increase in cross-boundary traffic. These projects include -

- (a) Western Highway which comprises the Deep Bay Link, Route 10 - North Lantau to Yuen Long Highway, Route 10 - Hong Kong Lantau Link and Route 7 - Kennedy Town to Aberdeen;
- (b) Yuen Long Highway widening;
- (c) Route 9 - Tsing Yi to Lai Chi Kok; and
- (d) Route 16 - Shatin to West Kowloon.

Encl. 1 Details of these major projects are given in Enclosure 1. A map showing the route
Encl. 2 alignments of these projects is at Enclosure 2.

4. The experience gained from the successful project management of the Airport Core Programme (ACP) highways projects affirms the need for a dedicated project management team to ensure timely delivery and effective budget control of capital works projects. This tried and tested arrangement for managing large scale projects requires the deployment of a sufficient number of qualified and experienced staff within government from the early planning stage.

5. Due to the magnitude and the complexity of the new projects, the D of Hy needs to re-structure the existing MWPMO to form a nucleus team to oversee the delivery of the projects from conception through to completion. He requires initially the six directorate posts mentioned in paragraph 2 above to plan and manage the projects. We will further expand the team if necessary as the projects progress to the design and construction phases.

Major Works Project Management Office

6. We set up the MWPMO in the Highways Department (HyD) in 1995 for the management and implementation of major non-ACP highway projects. The office is headed by the Assistant Director/Major Works (AD/MW), ranked at GE, and its staff includes 153 officers of different disciplines. It is necessary to expand the MWPMO to ensure that adequate expertise and personnel are available to handle the additional duties generated from the major projects mentioned in paragraph 3 above. The existing and proposed organisation charts of the HyD are at Enclosures 3 to 4.

Encl. 3&4

Project Manager/Major Works

7. The proposed PGE post, to be designated Project Manager/Major Works (PM/MW), will head the MWPMO, which we expect will ultimately require over 300 professional, technical and general support staff at the peak construction stage. PM/MW will be responsible for -

- formulating project schedules and resource plans;
- monitoring and evaluating project performance;
- devising action plans to avoid or reduce risks that may threaten the successful completion of the projects;
- identifying and resolving interfacing issues likely to impede progress of the projects; and

/wrapping

- wrapping up ACP highway project contract claims.

Encl. 5

8. The existing projects in hand cost about \$31 billion and the new projects about \$65.5 billion. A breakdown of the costs of the new major projects is at Enclosure 5. Their scope, scale and complexity exceed those of the ACP highway projects. We require an officer at the rank of a PGE to take forward these projects so that we can identify and address problems at the earliest possible stage to prevent programme slippage and to avoid additional expenditure.

9. PM/MW will be assisted by two GEs - the proposed Government Engineer/Major Works (1) (GE/MW(1)) and the existing AD/MW, to be retitled as Government Engineer/Major Works (2) (GE/MW(2)), to plan and implement all the large scale highway projects.

Government Engineer/Major Works (1)

10. The new post of GE/MW(1) will be responsible for supervising the work of four CEs and their teams of professional staff in managing new major projects. His major tasks include -

- assisting PM/MW in developing and implementing the project schedules;
- co-ordinating the work of different divisions under his supervision; and
- formulating the project management plans with the CEs.

11. GE/MW(1) will play a pivotal role between PM/MW and the CEs who will be directly responsible for the consultancy agreements and construction contracts. He will also assist PM/MW to implement the project strategies.

Chief Engineers (CE/MW(1), CE/MW(2), CE/MW(3) and CE/MW(4))

12. The four proposed CE posts will each head a division overseeing all planning, design and construction aspects of their respective projects, starting from the feasibility study/preliminary design stage. Their major tasks include -

/planning

- planning and managing all contract works of the highway projects;
- monitoring the performance of consultants and Construction Management Support Services;
- managing the professional and technical staff in the project teams; and
- assuming overall responsibility for the control of project scope, cost and programme.

Encl. 6 13. In view of the magnitude and complexity of the new projects, we require four CEs to plan and monitor the works which have a total cost of about \$65.5 billion. Enclosure 6 shows the distribution of projects among the Chief Engineers in the initial years. We will keep the workload and organisational structure of the MWPMO under review and will seek additional directorate support to cope with the growth in workload as the projects develop.

Encl. 7-9 14. The job descriptions of the six proposed directorate posts in the MWPMO are at Enclosures 7 to 9.

Government Engineer/Major Works (2)

15. We will retitle the existing AD/MW post and the two CE posts under it as GE/MW(2), CE/MW(5) and CE/MW(6) respectively. They will continue to be responsible for other major capital works projects such as the Widening of Tolo Highway, Castle Peak Road and the Central Kowloon Route. At present, they oversee 29 capital works projects with a total estimated cost of \$31 billion.

Chief Engineer for Route 3 Country Park Section (CE/CPS(R3))

Encl. 10 16. The supernumerary post of CE/CPS(R3) was created in July 1994 for a period of four years to oversee the Route 3 Country Park Section (CPS) project. His major duty is to manage his team in administering the CPS Project Agreement and ensuring that all obligations of the franchisee and its contractor are fulfilled. The job descriptions of the post is at Enclosure 10.

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17. The Route 3 CPS project costs \$7.2 billion and consists of a 12-km carriageway and a 3.8-km tunnel. This is a Build-Operate-Transfer (BOT) project with a franchise period of 30 years. Construction work started in January 1995 and is now 92% completed. It is scheduled to open to traffic in mid-1998.

18. As a result of the substantial increase in the population in North West New Territories in recent years, the existing Pok Oi interchange (POI) has almost reached its capacity during the morning peak hours. After the commissioning of the CPS of Route 3, all traffic between Route 3 and Yuen Long/Tuen Mun will have to pass through POI. As a result, we estimate that the traffic volume at POI would exceed the capacity of the interchange by 65% by 1999. To alleviate the traffic congestion, we have upgraded Public Works Programme item 644TH “Highway Between Shap Pat Heung interchange and Pok Oi interchange - Pok Oi Flyover” in May 1997 to provide a route for through traffic between Route 3 and Yuen Long Highway. As the site of the Pok Oi Flyover lies partly within the works site of the Route 3 CPS project, we have entrusted the detailed design and construction of the works to the franchisee of the Route 3 CPS project to enable early completion of the improvement works and to eliminate interface problems. The construction work of Pok Oi Flyover commenced in September 1997 for completion in February 1999.

19. We need to extend the post of CE/CPS(R3) by nine months from July 1998 to the end of March 1999 to resolve the outstanding issues of the Route 3 CPS project and to carry out the day-to-day management of the Pok Oi Flyover project. CE/CPS(R3) will also take up the residual work of the Western Harbour Crossing, also a BOT project, when the Airport and Port Access Project Management Office (APAPMO) runs down further in 1998. His major duties will include -

- monitoring of the Pok Oi Flyover project;
- liaison with different maintenance authorities on the as-constructed drawings and operation and maintenance manuals;
- liaison with the franchisee to ensure compliance with the operation and maintenance manuals;
- supervision of the consultants in carrying out regular inspections during the maintenance period; and
- liaison with Lands Department on the reinstatement and return of private land to owners who previously agreed to allow government's use as temporary works area.

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FINANCIAL IMPLICATIONS

20. The additional notional annual salary cost of this proposal at mid-point is \$7,518,000. The full annual average staff cost of the proposal, including salaries and on-costs, is \$13,015,218. We have included sufficient provision in the 1998-99 draft Estimates to meet the cost of this proposal. In addition, the D of Hy will need to create 47 non-directorate posts in various professional, technical, secretarial and clerical grades to support the expanded MWPMO, amounting to \$20,377,860 at notional annual salary at mid-point and a full annual average staff cost of \$33,950,484. The posts will be created through the normal Departmental Establishment Committee machinery.

BACKGROUND INFORMATION

21. Currently, the HyD has four Project Management Offices, namely Lantau Fixed Crossing Project Management Office (LFCPMO), APAPMO, MWPMO and Railway Development Office (RDO).

22. The LFCPMO and APAPMO are responsible for managing the construction of ACP highway projects. In the light of the progress of the ACP highway projects, the LFCPMO and the APAPMO have been scaling down in phases. We will reduce their total establishment from 114 at the peak construction stage to 33 by 1 April 1998, including the deletion of the posts of Project Director/Lantau Fixed Crossing (D4), Project Manager/Airport & Port Access (D3), two GEs(D2) and two CEs(D1). These two offices will be run down totally and dissolved by the end of 1998-99.

23. The MWPMO is responsible for managing the construction of major non-ACP highway projects. The RDO is responsible for co-ordinating the implementation of the Airport Railway project and planning for the expansion of the Territory's railway systems in accordance with the Railway Development Strategy.

CIVIL SERVICE BUREAU COMMENTS

24. Civil Service Bureau considers the ranking and grading of the proposed permanent posts to be appropriate, having regard to the scope and level of responsibilities and professional input required. It also supports the retention of the supernumerary post.

/ADVICE

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

25. The Standing Committee on Directorate Salaries and Conditions of Service has advised that the grading proposed for the posts would be appropriate if the posts were to be created.

Transport Bureau
January 1998

Planned Major Highway Projects

(I) Western Highway

The Western Highway will extend from Aberdeen on the south side of Hong Kong Island to Deep Bay where it will connect to the proposed Shenzhen Western Corridor. The scope of this project is even larger than that of the new expressway to the Airport at Chek Lap Kok.

2. The section of the Western Highway for which Highways Department is responsible comprises four major projects: (i) Deep Bay Link, (ii) Route 10 - North Lantau to Yuen Long Highway, (iii) Route 10 - Hong Kong Lantau Link and (iv) Route 7 - Kennedy Town to Aberdeen. These four projects, together estimated to cost about \$50 billion and measure 33 km in length, include 13.6 km of tunnels and a 2-km suspension bridge with a central span of 1.3 km. Details of these four projects are as follows -

(i) Deep Bay Link

The highway is designed to run across the northwest New Territories connecting Deep Bay and Route 10 - North Lantau to Yuen Long Highway. Measuring 4.4 km in length with a 2-km tunnel, the project is estimated to cost \$4 billion. The project is programmed to be completed by 2006 to meet the overall target opening of the Western Highway. Project investigation and preliminary design will commence in early 1999, followed by detailed design in 2002 with a view to commencing construction in 2003 for completion in 2006.

(ii) Route 10 - North Lantau to Yuen Long Highway

Route 10 - North Lantau to Yuen Long Highway connects Yuen Long Highway to north Lantau, measuring 17.5 km in length with three tunnels totalling 7.4 km and a 2-km suspension bridge. The project is estimated to cost \$22 billion. The detailed feasibility study for the project is nearing completion. Preliminary design will commence in March 1998, followed by detailed design in late 1999 so as to achieve the target construction commencement in April 2002 for completion in 2007.

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(iii) Route 10 - Hong Kong Lantau Link

Route 10 - Hong Kong Lantau Link connects the eastern end of Lantau with Route 7. The project will include a 3.1-km immersed tube tunnel and is estimated to cost \$17 billion. A detailed feasibility study and preliminary design will commence in December 1998. Construction is scheduled to commence in 2003 for completion in 2009.

(iv) Route 7 - Kennedy Town to Aberdeen

The highway will run from Belcher Bay Reclamation in Kennedy Town to Aberdeen. Measuring 8 km in length with two tunnels totalling 1.1 km, the project is estimated to cost \$7 billion. A detailed feasibility study will commence in July 1998. Construction is scheduled to commence in 2003 for completion in stages between 2007 and 2010.

(II) Yuen Long Highway Widening

3. Yuen Long Highway, an essential component of the New Territories Circular Road, is a dual two-lane road linking Lam Tei and Pok Oi. Due to a marked increase in traffic in the northwest New Territories and the projected increase in population in the region by 2011, the capacity of the highway will have to be increased to meet the traffic demand.

4. A preliminary project feasibility study will be completed by February 1998. Construction is scheduled to commence in 2002 for completion in 2005 at an estimated cost of \$1 billion.

(III) Route 9 - Tsing Yi to Lai Chi Kok

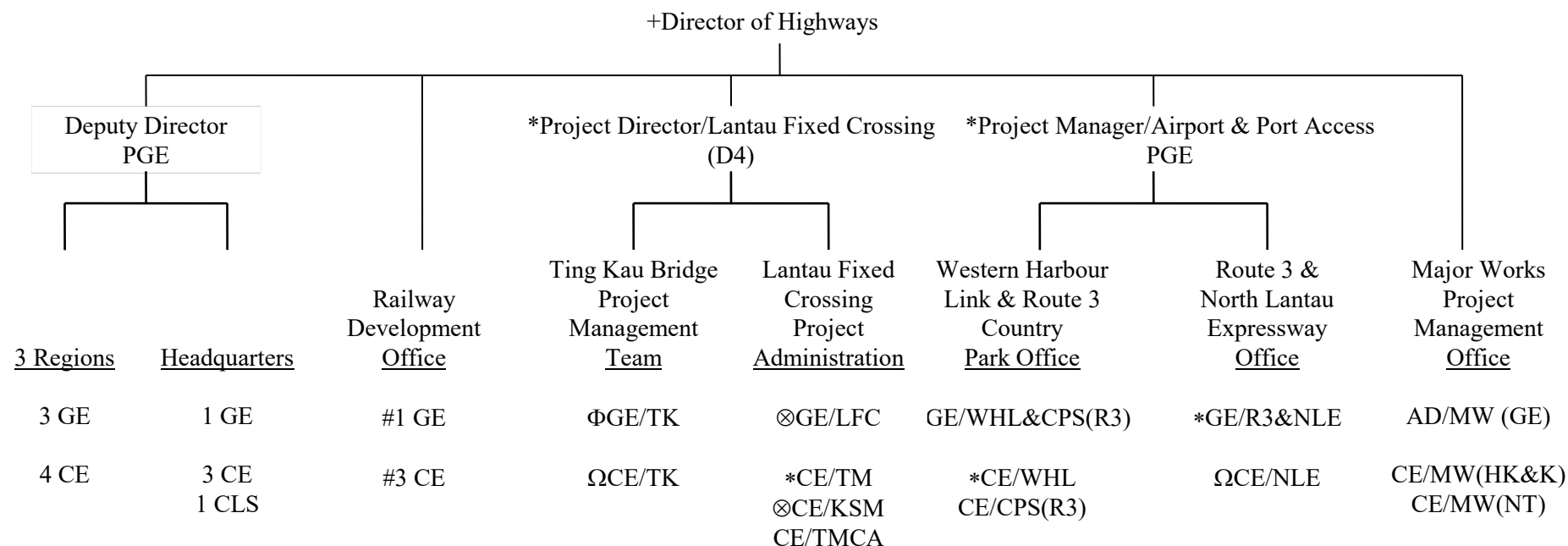
5. The expressway is 7.6 km long and runs from the southern part of Tsing Yi to West Kowloon, including a 1.4-km bored tunnel and a suspension bridge with a central span of 1.1 km. It is intended to provide an alternative connection between Kwai Chung, Tsing Yi and Ting Kau Bridge. A detailed feasibility study is already under way. Preliminary design will then proceed so as to achieve the target construction commencement in 2002 for completion in 2006 at an estimated cost of \$9.5 billion.

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(IV) Route 16 - Shatin to West Kowloon

6. Route 16 runs between Shatin and West Kowloon, and comprises a 4.9-km road and two bored tunnels. The detailed feasibility study and preliminary design are in progress. Detailed design will commence in 1998 in order to meet the programmed construction commencement in 2001 for completion in 2004 at an estimated cost of \$5 billion.

**Existing Organisation Chart of Highways Department
as at 1.12.1997**

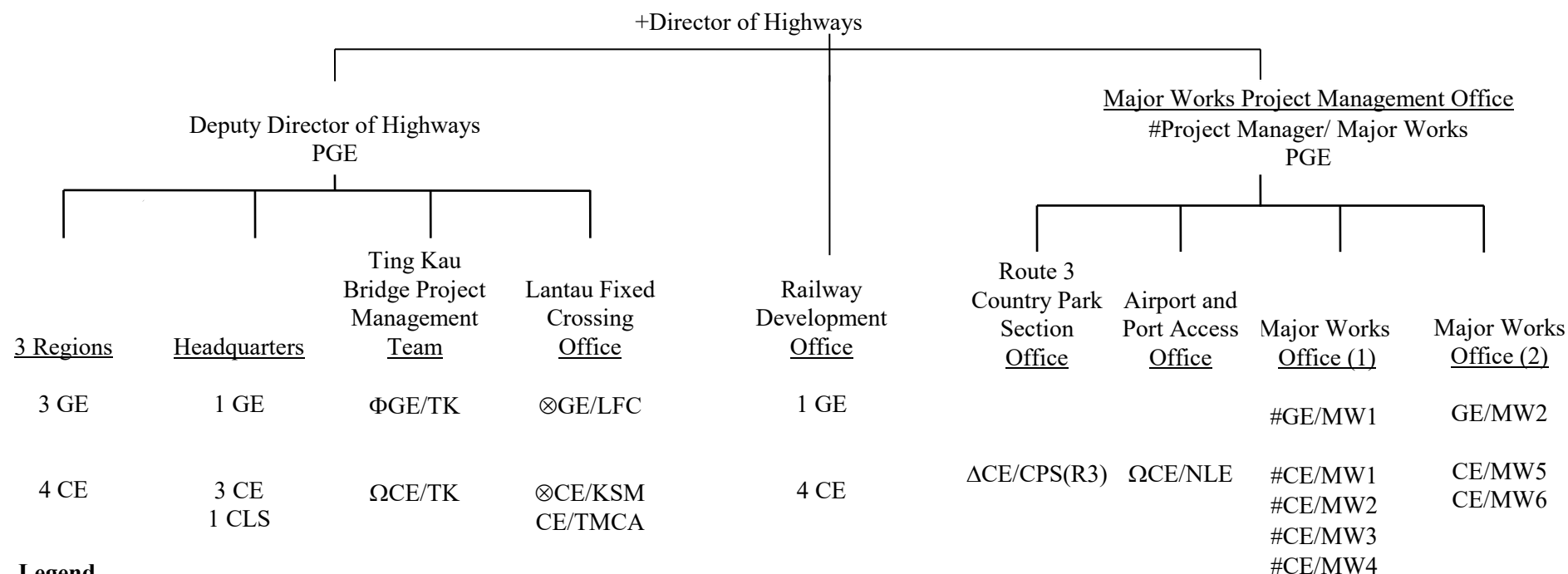


Legend

PGE Principal Government Engineer (D3)
 GE Government Engineer (D2)
 CE Chief Engineer (D1)
 CLS Chief Land Surveyor (D1)

+ Supernumerary D6 post held against a permanent D5 post
 * Posts scheduled to lapse on 1.4.1998
 Φ Post scheduled to lapse on 1.10.1998
 ⊗ Posts proposed to lapse on 1.1.1999 under another ESC submission
 Ω Posts proposed to lapse on 1.4.1999 under another ESC submission
 # GE post proposed to be made permanent and 1 CE post proposed to be created under another ESC submission

**Proposed Organisation Chart of Highways Department
as at 1.4.1998**



Legend

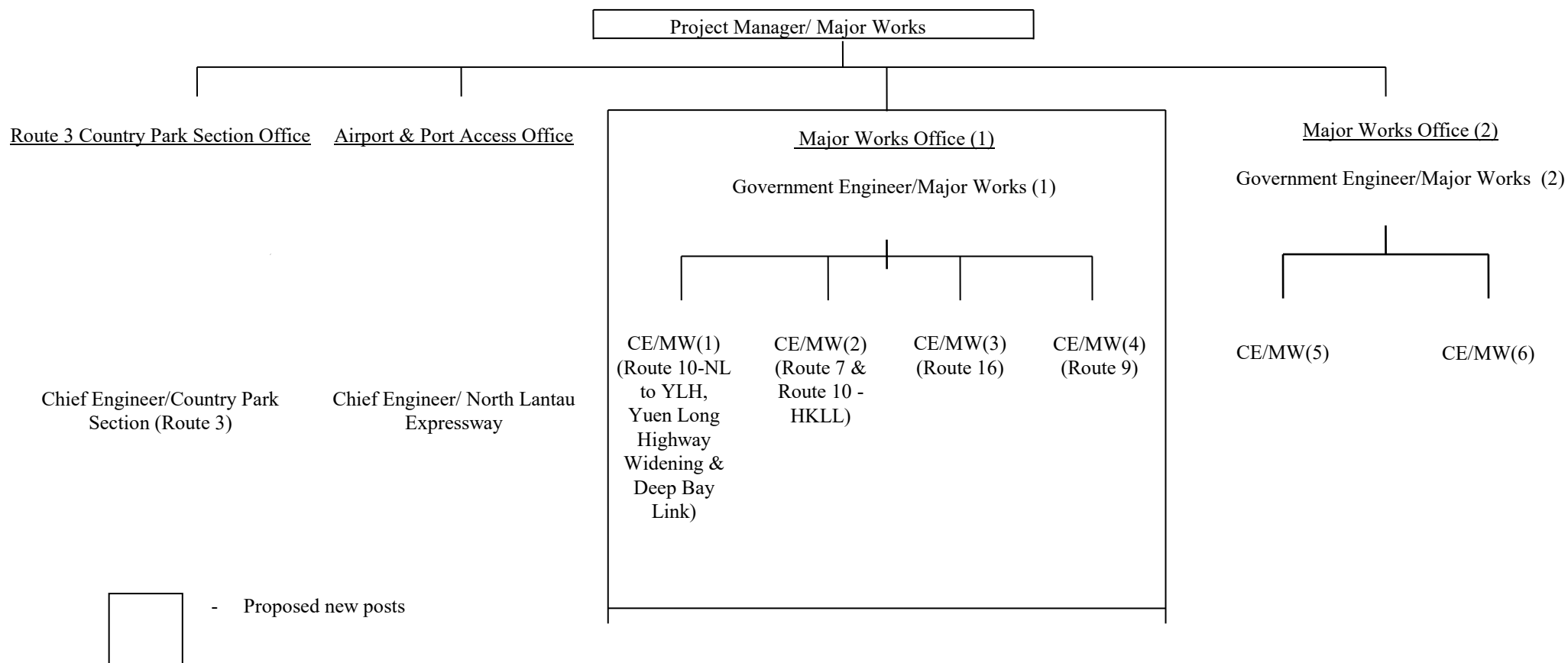
PGE Principal Government Engineer (D3)
 GE Government Engineer (D2)
 CE Chief Engineer (D1)
 CLS Chief Land Surveyor (D1)

+ Supernumerary D6 post held against a permanent D5 post
 # Posts proposed for creation
 Δ Post proposed for retention up to 31.3.1999
 Φ Post scheduled to lapse on 1.10.1998
 ⊗ Posts proposed to lapse on 1.1.1999 under another ESC submission
 Ω Posts proposed to lapse on 1.4.1999 under another ESC submission

**Breakdown of Costs of New Major Projects
Managed by Highways Department**

Projects		Estimated cost (\$ billion)
1.	Western Highway	
	(a) Deep Bay Link	4.0
	(b) Route 10 - North Lantau to Yuen Long Highway	22.0
	(c) Route 10 - Hong Kong Lantau Link	17.0
	(d) Route 7 - Kennedy Town to Aberdeen	7.0
2.	Yuen Long Highway Widening	1.0
3.	Route 9 - Tsing Yi to Lai Chi Kok	9.5
4.	Route 16 - Shatin to West Kowloon	<u>5.0</u>
	Total	<u>65.5</u>

**Proposed Organisation Chart of Major Works Project Management Office
as at 1.4.1998**



**Highways Department
Proposed Job Description**

Post title: Project Manager/Major Works (PM/MW)
Rank: Principal Government Engineer (D3)
Responsible to: Director of Highways

Overall Role and Objectives

PM/MW will head the Major Works Project Management Office and will be responsible for providing overall professional, administrative and policy direction, support and leadership to his subordinates.

Major Duties and Responsibilities

- (a) Planning, administering and directing the work of the Project Management Office to ensure strategic highway projects are completed on time and within budget;
- (b) formulating strategies, policies and procedures required for implementing the project plans;
- (c) liaising and co-ordinating with policy bureaux and government departments on government activities necessary for execution of the projects;
- (d) recommending selection of consultants, overseeing consultants engaged on feasibility, preliminary design and detailed design studies, evaluating and advising on selection of schemes and acting as the Director's Representative under the agreements;
- (e) letting of tenders and the assessment mechanism for tender selection;
- (f) overseeing the construction arrangement, supervising the management of contractors engaged in construction contracts and acting as Employer's Representative under the contracts;

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- (g) advising on technical standards and providing support in negotiations and liaison with private sector organisations on privatised projects;
- (h) monitoring the progress of resolution of claims and disputes raised by the contractors; and
- (i) co-ordinating the submission of projects for inclusion in the Public Works Programme and securing staff and other resources as required.

**Highways Department
Proposed Job Description**

Post title: Government Engineer/Major Works (GE/MW)
Rank: Government Engineer (D2)
Responsible to: Project Manager/Major Works

Overall Role and Objectives

GE/MW manages the day-to-day operations of the Divisions under his control. He will provide professional, administrative and policy guidance, support and leadership to his subordinates who are responsible for implementing specific strategic highway projects.

Major Duties and Responsibilities

- (a) Executing the strategies, policies and procedures as formulated by the Project Manager to control project scope, cost and programme of individual projects;
- (b) monitoring, managing and co-ordinating the work of his Divisions in implementing the approved project plans;
- (c) monitoring and re-distributing the workload of individual Divisions under his control to ensure maximum utilisation of resources;
- (d) setting Divisional programme and cost targets and monitoring performance against the set targets;
- (e) liaising with policy bureaux and other government departments on issues affecting the implementation of projects;
- (f) negotiating and processing consultants agreements through the Consultants Selection Board; and
- (g) developing tender documents and assessing tenders for the strategic highway projects.

**Highways Department
Proposed Job Description**

Post title: Chief Engineer/Major Works (CE/MW)
Rank: Chief Engineer (D1)
Responsible to: Government Engineer/Major Works

Overall Role and Objectives

The Chief Engineer will each head a Division and will be responsible for the implementation of a number of strategic highway projects.

Major Duties and Responsibilities

General

- (a) Ensuring his Division conducts its work in accordance with the strategies, policies and procedures as formulated by senior management;
- (b) providing leadership, support and direction to his subordinates in the planning, design and construction of strategic highway projects under his charge;
- (c) organising briefings, information papers and situation reports for the senior management; and
- (d) attending District Boards and other meetings as and when required.

Planning and Design

- (a) Consulting and co-ordinating with other departments in preparing project briefs for feasibility, preliminary design and detailed design studies;
- (b) implementing the selection and award of consultancies;
- (c) controlling the consultancy budget and certifying payments;
- (d) ensuring the consultants fulfil the agreement obligations; and

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- (e) ensuring final working drawings, specifications and other documentation comply with government requirements.

Construction Management

- (a) consulting and co-ordinating with other departments in preparing the terms and conditions of the construction contracts;
- (b) managing the invitation of tenders, selection of contractors and award of construction contracts;
- (c) overseeing construction progress and ensuring compliance with the approved schedules, government procedures and standards;
- (d) vetting and certifying payments to contractors;
- (e) handing over completed works to maintenance authorities and ensuring as-constructed records are accurate and complete; and
- (f) resolving claims and disputes raised by the contractors.

**Highways Department
Proposed Job Description**

Post title: Chief Engineer/Country Park Section (Route 3) (CE/CPS(R3))
Rank: Chief Engineer (D1)
Responsible to: Project Manager/Major Works

Overall Role and Objectives

The Chief Engineer heads the CPS Division in managing the implementation of the Route 3 Country Park Section and Pok Oi Flyover projects and will be responsible for the residual duties of the Western Harbour Crossing project.

Major Duties and Responsibilities

- (a) Managing the Route 3 Country Park Section and Pok Oi Flyover projects and residual duties of the Western Harbour Crossing project;
- (b) liaising with the CPS Franchisee about the operation and maintenance obligations under the Project Agreements;
- (c) ensuring the CPS works are completed in accordance with the Technical Requirements;
- (d) ensuring the maintenance requirements are fulfilled;
- (e) overseeing the construction of the Pok Oi Flyover and issue of the completion certificate; and
- (f) liaising with Lands Department on the reinstatement and return of private land to land owners who previously agreed to allow government use as temporary works area.