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ROUTE 3 COUNTRY PARK SECTION

INVITATION FOR

EXPRESSIONS OF INTEREST

PROJECT OUTLINE

TRANSPORT BRANCH

HONG KONG GOVERNMENT

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INVITATION FOR EXPRESSIONS OF INTEREST IN DEVELOPING
THE COUNTRY PARK SECTION OF ROUTE 3 ("THE PROJECT")

Project Outline

N.B. This Outline is issued for information purposes only, with a view to inviting expressions of interest for the finance. design, construction and operation of the Project.

1 Introduction

1.1 Route 3, to be constructed to expressway standard between Au Tau in Yuen Long and Sai Ying Pun on Hong Kong Island, is a key element in the future road infrastructure in the Territory.

1.2 The primary function of Route 3 is to serve the growing traffic demand in the North West New Territories. the Kwai Chung Container Port and western Kowloon. The southern portion of Route 3 forms part of the principal access to the Chek Lap Kok Airport. This comprises the Tsing Yi and Kwai Chung Sections from northwest Tsing Yi to Mei Foo, the West Kowloon Expressway and the Western Harbour Crossing to Hong Kong Island, all of which are included in the Airport Core Programme.

1.3 The northern portion of Route 3, namely the Country Park Section. consists of the following principal elements:-

(a) The Ting Kau Bridge and the North West Tsing Yi Interchange;
(b) The Tai Lam Tunnel including the Ting Kau interchange; and
(c) The Yuen Long Approach from Au Tau to Tai Lam Tunnel including the connections to the roads in the area including the Yuen Long Southern By-pass.

The Country Park Section of Route 3 is not included in the Airport Core Programme.

1.4 The Country Park Section is a critical link in catering for increasing demands of traffic generated from the border and developments in the North West New Territories.

1.5 A consultancy for the Stage 1 preliminary design of the Country Park Section was commissioned by Highways Department in February 1992 and was completed in July 1992 to provide a robust cost estimate and programme for the project. Government has decided to implement the project on a dual 3- lane basis. The preliminary design of Ting Kau Bridge and outline design of Tai Lam Tunnel have been completed.

1.6 A consultancy for the Stage 2 preliminary design. which includes an Environmental Impact Assessment. a Drainage Impact Assessment. and the finalisation of preliminary design of the Country Park Section. has been commissioned by the Highways Department in February 1993 for completion by October 1993.

2 Alignment

2.1 Appendix A shows the alignment of the Project which is based on the evaluation against criteria including traffic service. design features. environmental impact, cost and programme.

2.2 At the Yuen Long end, the western branch (YL3b) of the road alignment will link with Yuen Long Southern Bypass and the proposed district distributor into Yuen Long to serve the Yuen Long South and Tin Shui Wai traffic. The mainline will link into the New Territories Circular Road at Au Tau with slip roads to Kam Tin Road. At the Ting Kau end. the Ting Kau Interchange will provide a major interchange with Ting Kau Bridge and Tuen Mun Road with provision for future connection to the proposed Sham Tseng Link to Lantau. the alignment of which is subject to further study.

2.3 The proposed Ting Kau Bridge will cross the Rambler Channel to connect the southern portal of the Tai Lam Tunnel to the North West Tsing Yi Interchange with the Lantau Fixed Crossing and the Tsing Yi Section of Route 3 with further provisions for a possible connection to the future Tsing Yi North Coastal Road.

3 Ting Kau Bridge

3.1 The bridge will carry a dual 3-lane carriageway as shown at Appendices B and C. It will consist of a high level cable-stayed bridge 700 metres long with a main span of 420 metres over the main fairway of the Rambler Channel and about 1,100 metres of approach viaducts. The height of the bridge deck is at approximately +65 metres PD.

3.2 The provision of wind shields on the bridge is required to offer similar protection as that offered by the lower deck of the Tsing Ma Bridge during strong and severe wind conditions by allowing one lane in both directions to remain open to traffic. The bridge and viaduct piers will be protected by a breakwater and rock island against impact arising from shipping accidents.

3.3 During the construction stage, the main fairway will be kept open at all times and the superstructure will be constructed sufficiently high such that adequate headroom is available for all passing ships. The proposed protective breakwater and rock island are situated where the water is shallow, and hence the apparent reduction in the water course width will have minimal effect on the capacity of the fairway.

3.4 The filling material for the breakwater and rock island is intended to be

transported from the large-scale bulk excavations at North West Tsing Yi and Ting Kau.

3.5 Model tests carried out on the proposed works in the Rambler Channel have indicated no significant effects on water quality. The impact on air. water and noise quality will be evaluated during the Stage 2 Preliminary Design. The earthworks and rock cutting, including the tunnel portal structures. will alter the Ting Kau valley and the northwest corner of Tsing Yi. Replanting/landscaping mitigation works will be required to minimise visual impact.

4 Tai Lam Tunnel

4.1 The Tai Lam Tunnel is about 3.4 kilometres in length between the southern portal at the Ting Kau Interchange and the northern portal to the west of Ho Pui as shown at **Appendices D and E.** The tunnel configuration is dual 3-lane with provision for expansion to dual 4-lane. The conforming design is twin 3-lane tunnels with a central reserve for the future addition of a 2-lane tunnel.

4.2 Subject to detailed design, the ventilation buildings and tunnel portals will be outside the boundary of the Country Park. This minimizes the air quality impact of the vitiated air passing from the tunnel ventilation system to the Country Park areas.

4.3 Reprovisioning of the catchwaters at the northern and southern portals is required, and the flow has to be maintained during construction. Earthworks and exposed rock cuttings will impact on the small valley at the northern portal.

4.4 It is intended that suitable surplus material, amounting to about 6 million m 3, from the Ting Kau Interchange and Tai Lam Tunnel excavation works will be transported by barge to the Lantau Port Peninsular Development, which may require the rock to be trimmed down to acceptable sizes.

5 Yuen Long Approach

5.1 The Yuen Long Approach, about 8 kilometres in length, will be an at-grade dual 3-lane expressway connecting the northern portal of the Tai Lam Tunnel with the New Territories Circular Road at Au Tau as shown in the general layout plans at **Appendices F, G and H.** A toll plaza with an administration building will be located along the mainline some distance before the junction with the western branch (YL3b) which will be a dual 2-lane carriageway to connect to a roundabout interchange at the Yuen Long Southern Bypass.

5.2 Since a significant portion of the Yuen Long Approach will be constructed on fill embankment varying in height between 1 metre and 13 metres over soft ground, different construction methods have to be considered to ensure stability of the road. About 2 million m 3 of fill have to be imported from suitable borrow areas.

5.3 Although the road is on the periphery of the Kam Tin River flood plain. its effect on the surrounding drainage system and the future river training works will be assessed via a Drainage Impact Assessment as part of the Stage 2 Preliminary Design.

5.4 Minimal visual intrusion is anticipated along the flood plain, but replanting is required at the Ma On Kong cut/fill slope area. Although the impact of the Yuen Long Approach on air quality and noise levels is considered to be surmountable, the extent of the impact and the mitigation measures required will be identified as part of the full environmental impact assessment to be carried out for the entire Project during the Stage 2 Preliminary Design.

5.5 The road alignment is kept close to the hillside in Kam Tin valley to reduce encroachment on, or severance of, existing communities. It avoids graveyards over most of its length by running on the flood plains and not cutting across spurs and ridges.

6 Toll Facilities

6.1 Provision in the design has been made for toll plazas within the Yuen Long Approach for traffic using the Tai Lam Tunnel and within the North West Tsing Yi Interchange for traffic travelling north and south on Route 3 between Cheung Ching Tunnel and the Ting Kau Bridge. No separate provision has been identified to collect tolls from traffic between Ting Kau Bridge and the Lantau Fixed Crossing. One option is for tolls to be collected by the Lantau Fixed Crossing operator with the Country Park Section Operator being reimbursed with a proportion of the Lantau Fixed Crossing toll to reflect the volume of traffic using the Ting Kau Bridge. Proposals are invited.

6.2 As part of the Lantau Fixed Crossing works Government will construct the North West Tsing Yi Interchange toll plaza administration and associated buildings and carry out site formation for approximately two thirds of the North West Tsing Yi Interchange. The Country Park Section Franchisee will be required to complete the remaining one third of the site formation for the North West Tsing Yi Interchange and construct, operate and maintain the toll plaza.

6.3 The Government wishes to achieve a low and stable toll regime throughout the Franchise Period whilst at the same time ensuring the private sector a reasonable but not excessive return. The Government will consider proposals based on a toll adjustment formula that may be linked to certain pre-determined conditions.

7 Traffic Control and Surveillance

7.1 The Traffic Control and Surveillance System for the Ting Kau Bridge including the Ting Kau Interchange is anticipated to be integrated into the system for the Control Area covering the Lantau Fixed Crossing and the Tsing Yi and

Kwai Chung Sections of Route 3. The implementation and operation of the traffic control and surveillance for the Ting Kau Bridge will be entrusted to the Lantau Fixed Crossing Operator and the Country Park Section franchisee will be required to pay for a proportion of the installation and operating costs.

7.2 The traffic control and surveillance system for the Tai Lam Tunnel and Yuen Long Approach will be separated from the Lantau Fixed Crossing's system, and will be controlled by the administration building at the toll plaza at Yuen Long Approach. The Franchisee shall have the full responsibility for constructing and operating this traffic control and surveillance system.

8 Traffic Forecasts

8.1 Using the transport forecasting model developed in the Second Comprehensive Transport Study, the daily traffic flows through the Tai Lam Tunnel are estimated as follows:-

Tai Lam Tunnel
Average Traffic Volume (veh/day)

Year	High Range Total	Low Range Total
1999	49,277	32,837
2001	57,551	40,158
2006	81,550	63,490
2011	98,325	92,945
2021	144,026	128,597

It is estimated that approximately 80% of traffic using Tai Lam Tunnel will be goods vehicles.

The above estimates are based on the Government's own assumptions including those concerning land use, airport and port development, cross border traffic forecasts, economic growth forecasts, future transport infrastructure development, tolling of tunnels/road crossings and traffic restraint measures. Any variation to the input assumptions would affect the above traffic forecasts.

The Government gives no guarantee and makes no representation as to future traffic volumes using the Project.

9 Development Conditions

9.1 The Government envisages granting a franchise to finance, design, construct and operate the Project on a Build-Operate-Transfer basis for a period of approximately 30 years, at which time the ownership of the Project will be

transferred to the Government at no cost. The Franchise will include the right to collect tolls on the Project over the Franchise Period. The Government will consider participating in the Project in the form of equity investment or by building some of the Project itself and may consider proposals which incorporate land or property development as part of the Project.

9.2 Subject to para 9.1 above. the Franchisee is expected to be responsible for the design, construction and operation of the entire Country Park Section of Route 3 and the works intended to be provided by the Franchisee are as follows:-

9.2.1 construction of the North West Tsing Yi Interchange including completion of the remaining one third of the site formation: construction of the North West Tsing Yi toll plaza;

9.2.2 Ting Kau Bridge of dual-3 lane with wind shields together with the associated breakwater, rock island and reclamation:

9.2.3 Ting Kau Interchange with the connection with Tuen Mun Road:

9.2.4 Tai Lam Tunnel - dual 3-lane tunnels with ventilation adits and buildings with capacity for future expansion of an additional 2-lane tunnel. Reprovisioning of catchwaters at the northern and southern portals is also required:

9.2.5 dual 3-lane main line carriageway of Yuen Long Approach with the associated interchanges with Kam Tin Road and with the New Territories Circular Road, and dual 2-lane branch road (YL3b) from the interchange with Kam Tin Road to Yuen Long Southern Bypass. The slip road connections to the Yuen Long Southern Bypass interchange and any modifications thereto are also required;

9.2.6 formation of borrow areas and the subsequent reinstatement with landscape works;

9.2.7 toll plaza and the administration building at the Yuen Long Approach;

9.2.8 traffic control and surveillance system for the Tai Lam Tunnel and Yuen Long Approach;

9.2.9 the carrying out of all necessary environmental studies and the implementation of all environmental mitigation measures. monitoring and audit requirements and landscaping works to the areas affected by the Project;

9.2.10 all drainage works to compensate any deficiency on drainage systems affected by the Project; and

9.2.11 reprovisioning of local access roads being affected by the Project.

The Franchisee will be required to operate and maintain the above facilities up to standards stipulated by Government.

10 Construction Programme and Cost

10.1 The construction costs of the Country Park Section. excluding land resumption and clearance, design and supervision costs, but including 10% construction contingency, are estimated to be about $9 billion at January 1992 prices.

10.2 To acknowledge the required use of the North West Tsing Yi Interchange administration buildings by the Country Park Section operator, the Franchisee may be required to contribute to the cost of the administration buildings.

10.3 The Franchisee will be required to meet the cost of expanding the Lantau Fixed Crossing traffic control and surveillance system to accommodate the Ting Kau Bridge. This work will be entrusted to the Lantau Fixed Crossing project (paragraph 7.1 above refers).

10.4 The construction in respect of the works mentioned in para 9.2 above will take some four years to complete, and is planned for completion in 1998/99. Proposals to complete all or any part of the project before 1998/99 may be considered favourably by the Government.

11 Contingent Works

11.1 Land resumption will be undertaken by Government on behalf of the Franchisee before the commencement of the Project. Reimbursement of the land resumption and clearance costs by the Franchisee is required. The following land requirements are envisaged:-

11.1.1 No problems are anticipated with land acquisition for the land required at Tsing Yi. At the Ting Kau end, the alignment has been designed to minimise encroachment on private lots and the private land required to be resumed is minimal. Several existing bathing sheds in Lido Beach are likely to be temporarily affected during construction.

11.1.2 Some 50 hectares of agricultural land at the Yuen Long Approach will be affected and resumed for the works. Indigenous villages are unlikely to be affected except isolated individual buildings.

11.1.3 The rough estimated land resumption and clearance costs for the Project are $1 billion at October 1992 rates.

11.2 Depending on recommendations to be made in the Stage 2 Preliminary Design. advance earth works may be required to provide access to the tunnel portals for the Franchisee to commence tunnel works at the commencement of the BOT contract. Such advance works will be constructed by Government and the cost

will be required to be reimbursed by the Franchisee. The preliminary cost of these advance works is included in the estimates provided in section 10 above.

12 Marine Dumping Grounds and Borrow Areas

12.1 The construction of the breakwater, rock island, bridge foundations and reclamation in the Rambler Channel will require dredging of marine mud to alluvium level and its subsequent disposal to dump. Contaminated marine mud classified in accordance with the latest EPD standards will be required to be dredged and transported to a designated marine dumping ground and capped in accordance with procedures specified by the Environmental Protection Department. The details of the anticipated dredged materials and the marine dumping grounds is expected to be available upon completion of the Stage 2 Preliminary Design.

12.2 Within the southern section of the Project, earthwork operations will occur in the North West Tsing Yi Interchange, the Ting Kau Interchange and the southern portion of the Tai Lam Tunnel. A portion of the excavated materials will be required for the breakwater, rock island and reclamation in the Rambler Channel and filling for the embankment in the Ting Kau Valley. Approximately 6 million m 3 of surplus materials will be disposed of by the Franchisee. However, depending on timing it is anticipated that they could be accepted by the Lantau Port Peninsular Development project which may require the rock to be reduced to acceptable sizes. Transportation of the excavated materials from the Ting Kau Interchange and Tai Lam Tunnel should not affect the normal traffic along the Tuen Mun Road. It is suggested that the materials be transported by conveyors across the Tuen Mun Road and Castle Peak Road to the reclamation beside the Ting Kau Beach.

12.3 Within the northern section of the Project, earthwork operations will occur in the Yuen Long Approach and the northern portion of the Tai Lam Tunnel. Since the majority of the Yuen Long Approach will be on embankment, there will be a shortfall of about 2 million m 3 of filling materials which will have to be imported from nearby borrow areas. Government is currently identifying suitable borrow areas for this use. Nevertheless, the works should be programmed, as far as possible, to meet this requirement from the surplus generated in the southern section subject to acceptance of the haul route traffic implications by the Commissioner for Transport and the Commissioner of Police.

13 Environmental Impact and Drainage Impact Assessments

13.1 A full environmental impact assessment including visual impact will be carried out during the Stage 2 Preliminary Design to identify mitigation measures to be undertaken by the Project. The Franchisee may be required to conduct further environmental impact assessments to the satisfaction of the Environmental Protection Department and Country Parks Board prior to start of construction.

13.2 A preliminary drainage impact assessment will be conducted during the Stage 2 Preliminary Design to identify the effects of the Project on the low lying areas and to recommend measures to eliminate the problems. The Franchisee shall conduct a detailed drainage impact assessment to the satisfaction of the Drainage Services Department prior to start of construction.

None of the outline contained herein shall be construed as committing the Government to a particular method of awarding the franchise, nor is the Government obliged to adhere to these proposed terms, which merely represent in broad outline the Government's present conception of the Franchise of the Project.