Request for Information
on Provision of Toll Collection Services at Government Tolled Tunnels and Roads installed with Free-flow Tolling System

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1. Objective

1.1 The purpose of this Request for Information ("RFI") is to invite proposal for Provision of Toll Collection Services at Government Tolled Tunnels and Roads installed with Free-flow Tolling System and to explore market technologies and capabilities for providing the above mentioned services as a Toll Service Provider ("TSP").

1.2 This document serves to provide indicative project information and requirements. Any information and requirement details and quantities as referred in this document are for reference **ONLY**. It should not be interpreted as the final arrangement, requirement or specification of the tender document.

1.3 This document does not constitute any commitment by the HKSAR Government ("the Government") to any particular party in respect of any submission which may be submitted.

1.4 The Government shall not be responsible for any costs or liability incurred by the Respondent in the preparation of its submissions or subsequent response or initiatives on the part of any Respondent.

1.5 All costs and expenses involved in the preparation and submission of the RFI in response to this invitation shall be borne solely by the Respondent.

1.6 For the purpose of this RFI, Respondent may at their own decision submit partial or full proposal for the items listed in paragraph 10.

1.7 Any submission submitted for this RFI does not constitute any commitment by the Respondent to the Government including the budgetary estimation.

2. Submission

You are invited to submit a proposal for the items listed **in paragraph 10 and / or any other suggestions** on the technical requirements and operational arrangements of the project, and a budgetary estimation of your proposal in **Appendix IV**, together with the duly completed **Appendix V** on or before **6 May 2019 (Monday)** by email or fax as listed in paragraph 5.

3. Points to Note

3.1 Government's Disclaimers

All information and statistics contained in this invitation and the Appendix are provided to facilitate the Respondent's preparation of their submissions only. The Government does not warrant or represent (whether expressly or impliedly) as to the correctness, accuracy, completeness, reliability, timeliness or fitness for a particular purpose of any such information and statistics. The Government does not accept any liability to any person howsoever caused by the use of or reliance on any such information and statistics. The Respondent should conduct their own independent assessment of the information and statistics contained in this invitation document and seek professional advice if they deem necessary.

3.2 Personal Data of the Respondent

3.2.1 The personal data of the Respondent and of any individual provided as part of the RFI submission (collectively referred to as "personal data" in this paragraph) will be used by the Government for the purposes of processing the RFI submission, and all other purposes necessary for or directly related to the said purposes including but not limited to the resolution of any dispute arising from the RFI submission.

3.2.2 By submission of a RFI, the Respondent acknowledges and consents and has ensured that the individuals who are the subject of personal data have acknowledged and consented that personal data provided in the RFI submission may be disclosed to other Government Bureaux and Departments, the Legislative Council, the District Councils, the Area Committees, non-governmental organizations and data access applicants under the Code on Access to Information.

3.2.3 The Respondent and the individuals who are the subject of personal data have the right of access and correction with respect to personal data as provided for in Sections 18 and 22 of and Principle 6 of Schedule 1 to the Personal Data (Privacy) Ordinance (Chapter 486).

3.2.4 Enquiries concerning the personal data collected by means of this RFI exercise, including the making of access and corrections, should be addressed to

Access to Information Officer,
Transport Department Headquarters,
41/F, Immigration Tower,
Wan Chai, Hong Kong
Telephone No.: 2829 5236

3.3 Intellectual Property Rights

In making a submission, the Respondent shall be deemed to have granted to the Government a licence to use, adapt and modify its proposals submitted and all intellectual property rights subsisting in the submissions for all purposes in respect of or in connection with this RFI exercise.

4. Briefing Session

A briefing session in **Chinese** for the subject RFI will be arranged on 15 April 2019 (Monday). Interested parties shall complete and email or fax the form in **Appendix VI** to the contact person to register for the briefing. At most two representatives for each interested party are allowed. Details are as follows:

Date: 15 April 2019 (Monday)
Time: 2:30 PM – 3:30 PM (Hong Kong Time)
Venue: Room 4110A & 4110B, 41/F, Immigration Tower, 7 Gloucester Road, Wan Chai, Hong Kong.

5. Contact

Name: Ms. Kitty CHAN
Post: Senior Transport Officer / Infrastructure Management Planning 3
Tel.: (852) 3620 3484
Fax: (852) 3158 2398
Email: kittychan@td.gov.hk

6. Abbreviations

ANPR	-	Automatic Number Plate Recognition
API	-	Application Programming Interface
BOT Tunnel	-	Build-Operate-Transfer Tunnel
FFTS	-	Free Flow Tolling System
FPS	-	Fast Payment System
FRS	-	Functional Requirement Specification
IVU	-	In-vehicle Unit
MOM	-	Management, Operation and Maintenance
OGCIO	-	Office of the Government Chief Information Officer of the HKSAR Government
OAT	-	Operation Acceptance Test

PIA	-	Privacy Impact Assessment
PCI Data Security Stanadard	-	Payment Card Industry Data Security Standard
PT	-	Penetration Test
RFI	-	Request for Information
SIT	-	System Integration Test
SMS	-	Short Message Service
SRA	-	Security Risk Assessment
SVF	-	Stored Value Facility
TD	-	Transport Department
The Government	-	HKSAR Government
TKO-LTT	-	Tseung Kwan O – Lam Tin Tunnel
TSP	-	Toll Service Provider
URS	-	User Requirement Specification
VALID system	-	Vehicles and Drivers Licensing Integrated Data System owned and operated by TD
VRM	-	Vehicle Registration Mark

7. Brief Scope and Tentative Project Arrangement

7.1 Background

As stated in the Hong Kong Smart City Blueprint, the Government will develop the use of In-vehicle Units ("IVUs") for allowing tunnel toll payment without stopping at toll booths as one of the key smart mobility initiatives. FFTS allows vehicles to pay tolls more efficiently, avoiding disruption to traffic flow arising from the need to stop at toll booths for manual toll payment. Tseung Kwan O – Lam Tin Tunnel ("TKO-LTT"), which is not provided with toll plaza due to geographical restriction, will be the first government tolled tunnel implemented with FFTS in late 2021.

7.2 Operation of FFTS

The FFTS automates standardized process of toll collection and allows a vehicle to pay tolls through remote means without stopping. The use of a tolled tunnel or road will be detected by the field equipment of FFTS by (i) reading an IVU fixed to a vehicle; or (ii) through recognition of the vehicle registration mark ("VRM") on vehicle number plate. For (i), it requires electronic communication based on a radio frequency associated with an IVU tag. For (ii), it required cameras to capture the video images of vehicles.

Next, identity of the vehicle (either IVU or VRM), together with the time and location data, will be sent to the backend system of FFTS, which will then match the identity of vehicle against the record from the VALID system of Transport Department ("TD"). Once verified and checked that the vehicle is linked to a pre-registered auto payment account, the toll transaction will be loaded and paid automatically. If the detected vehicle is not linked to an auto payment account or when automatic payment through FFTS account is unsuccessful, the FFTS backend system will hold the unpaid record for settlement in arrears through other payment methods.

7.3 Issuance of IVU

To enable tolling at TKO-LTT through IVU detection upon its commissioning in late 2021, TD will issue an IVU to the vehicle owner, and the tag number on IVU shall be associated with the unique reference number of the vehicle. Having considered that vehicle owners are required to renew the vehicle licence of their vehicles either every four or twelve months, TD plans to commence issuing IVUs to registered vehicle owners at licencing offices in the third quarter of 2020.

7.4 Toll Collection with FFTS

7.4.1 Two broad types of toll payment methods will be allowed:

i) **Auto payment**: made through direct debit from a payment account which is pre-registered with TD; or

ii) **Payment in arrears**: made manually within "grace period" through designated website or mobile application.

7.4.2 The registered owner of a vehicle or its authorized agent must use the IVU issued by TD to open and maintain an account with TD for enjoying auto payment service.

7.4.3 TD plans to mandate toll payment by IVU detection with automatic payment upon the implementation of FFTS at all government tolled tunnels and roads.

7.4.4 For payment in arrears, the registered owner of vehicle or its authorized agent may choose to open a non-auto payment account with VRM for viewing the use of a tolled tunnel or road and for payment on trip basis subject to detail design of the backend system. If a vehicle used a tolled tunnel or road without any pre-registration with TD, only a lump sum of unpaid toll of a day can be retrieved for payment.

7.5 Arrangement for Commercial Vehicles

7.5.1 Taking taxi operation as an example, there are usually 3 shifts (morning shift, night shift and special shift) of drivers operating a taxi round the clock. The driver pays the taxi owner / management agent which only covers the taxi rental for the shift hours. The driver is responsible for all cost incurred during his shift hours, including fuel cost, tolls for tunnels / tolled roads, fixed penalty ticket, etc.

7.5.2 To facilitate splitting toll bills for tunnels / tolled roads amongst taxi owner / management agent and their drivers under FFTS where one vehicle will be issued with one IVU for detection, and thus associated with one auto payment account. In view of the above, automated setting or procedure will have to be developed to accommodate arrangement for commercial vehicles.

7.6 Appointment of Toll Service Provider

7.6.1 TD will engage a TSP through open tender for handling toll collection, toll recovery, as well as providing account management and customer services with FFTS for all tolled tunnels and roads with FFTS implemented.

7.6.2 The contract period of the first TSP contract is tentatively six years which will cover the commissioning of TKO-LTT and thereafter, all other government tolled tunnels and roads by phases within two to three years upon commissioning of TKO-LTT. The TSP is therefore required to reserve resources to cater for the full implementation of FFTS.

7.6.3 To cater for the growing diversity in automatic payment means, the number and forms of payment means that may be provided by the TSP will be one of the tender assessment criteria.

7.7 Scope of services

i) To ensure the FFTS is in proper operation[1] and the toll revenue is collected through auto payment and manual payment in arrears.

[1] Monitoring of the FFTS online applications through liaison with different parties / operators and reporting system abnormality to maintenance agent(s) and financial institutions for investigation and maintenance.

ii) To open and maintain customer account (i.e. auto payment account in respect of use of IVU) and non-auto payment account for tunnel user on behalf of the TD and provide account management and customer services.

iii) To set up protocol with financial institutions to enable auto payment, payment in arrears within grace period and payment of surcharge including setting up of and maintenance of the dedicated website and mobile application.

iv) To manually process video / photo images of VRM which cannot be recognized by ANPR camera for vehicle without IVU installed.

v) To handle enquiry and complaint.

vi) To issue demand notice for unpaid toll and surcharge.

vii) To facilitate TD's further action on toll recovery process as well as dispute handling process as raised by registered owner.

7.8 Tentative schedule for implementation of TSP contract

Tasks	**Timeline**
Invitation of RFI	4 Apr – 6 May 2019
RFI briefing session	15 Apr 2019
Close of RFI	6 May 2019
Tender invitation	Dec 2019
Tendering and assessment of TSP contract	Jan – Jun 2020
Award of TSP contract	Jun 2020
Commissioning of TKO-LTT	Q4 2021

7.9 Reference

Interest parties may refer to **Appendix I** for the paper submitted to the

Legislative Council Panel on Transport for discussion of the project on 18 January 2019, and **Appendix II** for the traffic figures and existing toll level of tolled tunnels and roads in Hong Kong.

8 Key Project Requirement – Design and Build of User Interface Section

8.1 General Requirement

8.1.1 Two online applications (i.e. web application and mobile application) shall be required. The applications shall be interfacing with a backend system to be developed by the Government to cater for toll payment of all motor vehicles using the Government tolled tunnel and road and to provide account registration, account maintenance, update of personal particulars, enquiry and retrieval of transaction record for payment, etc., to user.

8.1.2 The applications shall enable real-time transactions using payment card with sensitive information (e.g. Credit Card), Bank account auto payment and Faster Payment System ("FPS") of Hong Kong Monetary Authority and at least one licensed Stored Value Facility ("SVF"). All system components including hardware, software and all communication networks shall be set up to meet all compliance requirement and specification, which may update from time to time as required by corresponding authorities (e.g. PCI Data Security Standard). Type approval, if any, shall be obtained. TSP shall ensure the supplied system meet all these compliance requirement and specification throughout the whole contract period. The TSP shall set up protocol with financial institutions to enable the above-mentioned payment means with the online applications. TKO-LTT will be the first government tolled tunnel to apply FFTS. Furthermore, the TSP needs to provide system enhancement and the related services for future expansion to cover other government tolled tunnels and roads.

8.2 Type of User Account

Registered user 1

- Registered with IVU Tag ID
- Auto payment account has been setup already with one of the payment means such as Credit Card, Bank account auto payment, FPS and SVF

- **Available functions,** including but not limited to**:**
  - Customer Service
  - Post-Payment Service - Users pay by each trip or on lump sum basis, surcharge payment
  - Enquiry of Vehicle Crossing Record
  - Account View
  - Online Help

Registered user 2

- Registered with VRM
- **Available functions,** including but not limited to**:**
  - Customer Service
  - Post-Payment Service - Users pay by each trip or on lump sum basis, surcharge payment
  - Auto Payment setup
  - Enquiry of Vehicle Crossing Record
  - Account View
  - Online Help

Non-Registered user

- Not registered
- **Available functions,** including but not limited to**:**
  - User Registration - include the process of Auto Payment Setup
  - Post-Payment Service - Users pay by each trip or on lump sum basis, surcharge payment
  - Online Help

8.3 Key Functional Requirement of the Web Application and Mobile Application

Function	Service Detail	Type of user
User Registration	Provide e-form to collect user information for account creation. **Notification** The system will issue a notification to users to acknowledge users the registration is successful or not.	Non-Registered user
Customer Service	Provide service as below, including but not limited to:	Registered user 1 & 2

Function	Service Detail	Type of user
	● Change personal details (Password, address, mobile phone number, default language etc.) ● Provide option of account deletion ● Change option of auto payment ● Add or delete additional people to be able to access their account ● Add/delete/change VRM and its information ● Change communication preferences (for mandatory communications) ● Change communication preferences (for additional communications) ● Change communication preferences for account monthly statements	
	● Make a complaint ● Make an enquiry ● Query a surcharge notice	All users
Post-Payment Service	Allow users to login or input data (e.g. VRM) to retrieve unpaid record for payment with the application. An online payment platform should be available and be able to accept as many as electronic payment means (e.g. Credit Card, SVF), so that all users may make post-payment including surcharge payment. **Notification** The system will generate payment notification to users, acknowledge users the payment are successful or not. If non-registered users, the notification will be sent by Short Message Service	All users

Function	Service Detail	Type of user
	("SMS").	
Auto Payment Setup	The process helps to copy user basic information into form and let users download in PDF file format for users' further application to financial institution. The TSP shall provide and cater for a comprehensive range of auto payment options for registered users account setup involving sensitive payment card (e.g. Credit Card), SVF and auto payment from banking account. **Notification** The system will issue a notification to users to acknowledge users the auto payment setup is successful or not.	Registered user 2
Enquiry of Vehicle Crossing Record	Search and display the vehicle crossing records. This function is proposed for vehicle owner/driver to review detail vehicle crossing records. An authorization control is essential in the function design and in compliance with the privacy ordinance as well as to prevent unauthorized access.	Registered user 1 & 2
Account View	Provide service as below, including but not limited to: ● View/query recent transactions and debt records ● View the users' account monthly	Registered user 1 & 2

Function	Service Detail	Type of user
	statement	
Online Help	On-line HELP facility shall be provided in both web application and mobile application. The HELP messages shall be user friendly, concise and provide useful hints to the users.	All users

8.4 Mobile Notification

8.4.1 TSP shall provide notification service to remind users (include **Registered user 1** and **Registered user 2**) for any payment, surcharge and registration issues through the mobile application or by email.

8.4.2 The function shall be allowed to opt-in / opt-out by uses in User Configuration. If opt-out is applied, a message will prompt users that no notifications will be received.

8.4.3 The following messages shall be obtained by users, including but not limited to:

i) Auto payment is in process.
ii) Successful setup of auto payment or not.
iii) Successful transaction via auto payment or not (the toll fee is collected or the auto payment was failure).
iv) Reminder to pay toll (no auto payment setup).

8.4.4 It is desirable that the system can support sending ad-hoc message notification to users.

8.5 Web Application Functionality

8.5.1 The TSP shall ensure that the web application retains full functionality and proper outlook when viewed using all mainstream web browsers (the "**Web Browsers**"), and support with the latest and

a minimum of the previous three versions of the Web Browsers. The Web Browsers include but not limited to:

i) Microsoft Edge (include previous versions, Microsoft Internet Explorer);
ii) Google Chrome;
iii) Apple Safari; and
iv) Mozilla Firefox.

8.5.2 The user interface of the web application will provide three choices of language, namely English, Traditional Chinese and Simplified Chinese for selection of the user.

8.5.3 The TSP shall ensure that the web application automatically detects the type of device and size of display it is being viewed on, and automatically configure the web application to be viewed and operated correctly for that device and display (i.e. responsive design). The TSP shall ensure that there is no loss of functionality for any such configuration.

8.5.4 The TSP shall ensure the presenting content in accessibility mode, which is in compliance with W3C WCAG 2.0 Level AA standard within practicable means by reference to OCGIO's Web Accessibility Handbook.

8.5.5 The TSP may propose to TD the development of an Application Programming Interface (the "**API**") to enable third party developers to develop applications and programs which incorporates partial or all of the functions of the web application. The set of "**API**" should be capable of easy expansions by upgrading or modifying the software. The extension functions shall be proposed by the TSP and agreed by the TD.

8.6 Mobile Application Functionality

The TSP shall provide a dedicated application (the "**App**") for mobile or other devices that shall, as a minimum:

8.6.1 Facilitate payment of tolls as set out in section 8.3;

8.6.2 Ensure to be capable of operating on iOS and Android operating systems;

8.6.3 Ensure to be capable to perform the mobile application updating to fit for the change of the operating systems (including version update and upgrade), the program codes impacted by the latest version of anti-virus software or by any other related problems;

8.6.4 Ensure that the mobile application works correctly on smart phones and tablets using the iOS and Android operating systems. It should be able to retain its full functionality and proper outlook with the prevailing models and brand name of mobile devices, together supporting with a minimum of the previous three versions. The supporting models and brand names shall be proposed by the TSP and agreed by the TD;

8.6.5 The user interface of the mobile application will provide three choices of language, namely English, Traditional Chinese and Simplified Chinese for selection of the user;

8.6.6 Ensure the design would have well conceptual in UI/UX design and focuses strongly on efficiency and discoverability;

8.6.7 Supporting voice input and providing text-to-speech function to enable reading out of the payment information and search results; and

8.6.8 The TSP shall ensure the presenting content in accessibility mode, which is in compliance with W3C WCAG 2.0 Level AA standard within practicable means by reference to OCGIO's Web Accessibility Handbook and Mobile Applications Accessibility Handbook.

8.7 Technical and Security Requirement

8.7.1 TSP shall ensure privacy and comply with the OGCIO requirement in respect of security and privacy rule. As such, it shall require firewall server management, the issuance and use of digital certificates or similar means of user authentication, encryption of messages, and the

use of virtual private networks that tunnel through the public network.

8.7.2 TSP should observe the prevailing OGCIO IT security guidelines and best practices on proper protection of Government's information resources, including but not limited to, the following documents: -

a. Baseline IT Security Policy (S17)
b. IT Security Guidelines (G3)
c. Practice Guide for Penetration Testing
d. Practice Guide for Privacy Impact Assessment
e. Practice Guide for Privacy Compliance Audit
f. Practice Guide for Security Risk Assessment & Audit (ISPG-SM01)
g. Practice Guide for Information Security Incident Handling (ISPG-SM02)
h. Practice Guide for Mobile Security (ISPG-SM03)

For more detail, please refer to the URL below:
https://www.ogcio.gov.hk/en/our_work/information_cyber_security/government/

8.7.3 TSP shall carry out a Penetration Test ("PT") for TSP web application, mobile application and the full system of FFTS to ensure that the implementation of whole system will comply with the OGCIO standard and requirement. The PT report should record down the details of testing activities performed and the findings with recommendation by the qualified penetration expert.

8.7.4 TSP shall carry out a Privacy Impact Assessment ("PIA") to ensure that the implementation of the TSP applications will comply with the Personal Data (Privacy) Ordinance, other legal and regulatory requirements relating to the protection of personal data privacy. The Privacy Compliance Audit also needs to be included, to ensure that the assessment will comply with the OGCIO standard and requirement.

8.7.5 TSP shall conduct Security Risk Assessment ("SRA") to study the possible security issues including but not limited to, web application,

mobile application in iOS and Android operating systems, full system of FFTS, all the associated servers, web server, programs and APIs; such as eavesdropping, man-in-the-middle attack, virus, denial of services, cloning etc., and recommend necessary measures to tackle the security issues. The Security Audit also needs to be included, to ensure that the assessment will comply with the OGCIO standard and requirement.

8.7.6 There are 3 reports (PT, PIA, SRA) should be submitted by TSP to the respective government departments, including the OGCIO and other parties involved in the web application and mobile application implementation.

8.7.7 The TSP shall perform system monitoring and tuning, system administration and database administration, housekeeping activities, upgrading the services under this contract to cater for the updating (including new releases) of related operating systems, servers, program codes impacted by the latest version of anti-virus software and other essential system updates as well as update the static contents programmed in the services under this contract as requested by the TD;

8.7.8 The TSP shall keep the digital certificates valid in the contract period and be responsible for renewal of iOS Developer Program membership, domain name registrations and digital certificate for all project servers. Further, TSP needs to ensure anti-virus professional software suggested by the Government Public Cloud Service Provider (or other server hosting service provider) to fit for the proposed web application and mobile application within contract period and renew them starting 60 days before the completion date of the contract.

8.8 Other Requirements

8.8.1 Application Prototype - Prototype(s) of the proposed TSP web application and mobile application shall be provided for the TD comment during implementation period.

8.8.2 To manage government vehicles, a specific user management interface in web application and accounts need to be provided in order to cater for the operational and usage needs of various departments.

8.8.3 Testing and Commissioning - user acceptance tests and operational acceptance tests shall be carried out before system acceptance. All tests shall be conducted by TSP and witnessed by the representatives of TD. Further, about 10 working days reliability test before acceptance of the system should be provided. Detailed performance tests to verify the system performance shall be proposed.

8.8.4 To provide detail documentation, need to include design proposal, complement of User Requirement Specification ("URS"), FRS, equipment submission, installation proposals, method statements, risk assessments, progress reports, payment service, operation and maintenance manuals (including Application User Manual, Application Operation Manual, Computer Operating Procedure Manual, System Manual, Program Manual and Data Manual), the associated programs and source codes (including APIs).

8.9 Implementation Schedule

Stage		**Major Task/Activities**	**Target Timeline / number of days spending**
1	1.1	Tendering and Assessment of TSP Contract	Jan to Jun 2020
	1.2	Award of TSP Contract	Jun 2020
	1.3	Project Team Formation and Kick-off (Milestone)	2 July 2020
2	2.1	Requirement System Analysis & Design	15 working days
	2.2	Requirements Collection & Clarification	13 working days
	2.3	Prepare / update URS	10 working days
	2.4	Prepare / update FRS	10 working days
	2.5	Confirmation of URS and FRS	5 working days
3	3.1	Payment gateway testing with service provider	2 working days
4	4.1	Program development & unit testing	45 working days
	4.2	System Integration Test ("SIT")	20 working days
5	5.1	User Acceptance Test	20 working days

Stage		Major Task/Activities	Target Timeline / number of days spending
	5.2	Operation Acceptance Test ("OAT")	10 working days
6	6.1	Assessment and Audit by external assessor	10 working days
	6.2	Reliability Test	10 working days
	6.3	System Acceptance Endorsement (Milestone)	TBC
7	7.1	System Launch Preparation	10 working days
	7.2	System Launch on Production (Milestone)	1 April 2021
8	8.1	Support, Maintenance Period (7X24, in 6 years) and Enhancement to cover for other tunnels and roads	2190 working days
	8.2	Production fixing and outstanding UAT log patching	TBC
	8.3	Handover and training	TBC

9 Key Project Requirement – Operation Services Section

9.1 Service Schedule

9.1.1 The following key tasks shall be completed before the commissioning date of TKO-LTT:

i) Recruitment of staff;
ii) Formulation, documentation and training in respect of compliance of Personal Data (Privacy Ordinance) (Cap. 486);
iii) Provision and setting up premises and service outlets in Hong Kong;
iv) Promotion programme for auto payment account registration;
v) Coordination / integration with relevant parties (e.g. MOM operator of TKO-LTT) and sub-contractors (e.g. payment service provider); as well as all necessary contractual approvals and certification;
vi) Preparation of forms / notices for purposes including new registration, change of particulars, termination of service, dispute of toll, refund of toll, transaction enquiry, notification of unpaid toll, reminder for unpaid toll, demand notice of unpaid

toll and surcharge, etc. And to incorporate important notice and undertaking related to privacy, liability;

vii) Design and implement of specialized business processes to support the needs of different Fleet Customers (e.g. Taxi Trade / Public Light Bus Trade) to reduce their administrative burden and maintain a high level of toll payments (i.e. paragraph 7.5.2 above refers);

viii) Development of business procedures to handle toll recovery, toll exemption, toll reimbursement and toll refund;

ix) Formulation of financial auditing mechanism;

x) Propose the business rules for enforcement operation related to toll evasion; and

xi) Setting out the procedures for handling of the suspected toll evasion cases.

9.1.2 The TSP shall be required to provide and comply with the Minimum Performance Standards during the operation period (6 years) as follows:

Minimum Performance Standards

Tasks	Performance Standards
Customer Support Service	
(1) Account registration (website, mobile application, in person) and verification	Completion in 2 to 4 weeks
(2) To operate a Customer Service Centre in Hong Kong by providing a number of communication channels (including service counter, telephone, email, website, mobile application, WhatsApp, SMS, post, fax, etc.)	Service counter: 0800 hrs to 2100 hrs daily Other channels: 24 hrs daily
(3) To upload the journey record to website and mobile application for account holder enquiry	Whenever necessary due to system error
(4) To inform account holder / vehicle owner for	Whenever necessary due to system error

Tasks	Performance Standards
unsuccessful transaction	
(5) To inform account holder via SMS whenever the registered IVU has been detected as malfunction	As soon as possible
(6) To handle enquiry and complaint	Acknowledgement: within 2 working days Final reply: within 10 working days (for complicated case, within 20 working days) For appeal case: within 30 working days
(7) To produce necessary communication materials, e.g. leaflet, display, electronic information item	On-going and to be agreed with TD
(8) To implement promotion programme for auto payment account registration	On-going
(9) To conduct Customer Satisfaction Surveys to monitor the effectiveness and performance of the Customer Support Service	Every 12 months (The 1st one to be conducted 6 months after commencement of operation phase. Report shall be available within 2 months.)
(10) To conduct annual privacy audit review by external auditor	Every 12 months (Report shall be available 2 month thereafter. The report of last year shall be provided within 2 months after

Tasks	Performance Standards
	expiry/ termination of contract.)
Account Management Services	
(11) To allow the ability to register multiple vehicles under the same account holder, and provide a list showing the vehicles under the same account holder with journey details	On-going
(12) To handle request for change of payment method and means	On-going
(13) To hold regular meeting with representative organizations, trade bodies and association	Every 6 months
Financial Management Service	
(14) To collect toll and surcharge from the registered account (bank, Credit Card, SVF) and to pay directly to TD's nominated account	On-going, timeframe of payment to TD on various payment mean to be approved by TD
(15) To provide different payment options to suit different groups of tolled tunnel / road users (e.g. individual, taxi trade, public light bus trade, company with fleets, logistic company, etc.)	On-going
(16) To document all the accounting policies, processes and procedures, books and records	On-going
(17) To provide account statement to each account holder	Monthly
(18) To process reimbursement / refund and make electronic reimbursement / refund payments	On-going

Tasks	Performance Standards
directly to the account holder with real time notification to the account holder	
(19) To issue demand notice for unpaid toll and surcharge	On-going
(20) To notify the clearing house if daily settlement report not received.	Once every day
(21) To follow up the unpaid record with clearing house against the record generated from the FFTS (including photos, VRM, etc.)	On-going
(22) To handle dispute case (e.g. to review the recording, keep the recording until the conclusion of the case and suspend the auto-generation of notice for unpaid toll)	On-going
(23) To work closely with Tunnel MOM Operator for toll refunding for vehicles from which toll is not required (e.g. overheight vehicle that has been diverted away)	On-going
(24) To manually process video / photo images of VRM under the following situations: - when FFTS is not functioning - which cannot be recognized by ANPR camera for vehicle without IVU installed - which cannot be recognized by ANPR camera for vehicle with malfunctioned IVU	On-going
(25) To examine the case and prepare the case file with sufficient evidence for submission to	On-going

Tasks	Performance Standards
Prosecutions Unit of TD for prosecution action	
(26) To attend court as witness and to be testified if necessary	On-going
Reporting Services	
(27) To submit all related reports (Please refer to Appendix III for details)	Monthly and ad-hoc as required when necessary
(28) To generate reports for different purposes as required by the Government and audit checking for traffic information, toll revenue, etc.	Daily and as required by TD

9.2 Service Fee

9.2.1 The contract period of the first TSP is tentatively six years (i.e. paragraph 7.6.2 above refers).

9.2.2 The Service Fee in respect of each Contract Month will tentatively be combined with a fixed operating payment and a variable operational payment based on the transaction volume with reference to that of respective range of transaction volume.

9.3 Business Contingency

The TSP Operator has to set out an emergency plan in case of contingency, including but not limited to failure of field equipment, backend system, power supply system, fire, industrial action affecting the operation of the tolling service in whole or in part.

9.4 Contract Termination and Handover

The TSP Operator will be required to establish an Exit Management Plan (including but not limited to facilitate customer account and data migration,

recruitment of staff by incoming operator) to manage the period at the end of the Contract term. This plan will set out how the TSP Operator will comply with the contractual obligations in this area and include information that the Government shall reasonably require to allow for the orderly provision of the Services by the Government or a replacement operator upon expiry of the Contract.

9.5 Other issues

There are a number of other issues to be aware of in relation to the delivery of the services, including:

i) Privacy issue

The TSP is required to provide measures in system design and setting up of internal guidelines in compliance with the Personal Data (Privacy) Ordinance, other legal and regulatory requirements relating to the protection of personal data privacy when handling personal data. Annual privacy audit review by external auditor is also required to ensure that the management of TSP is adequate and comprehensive.

ii) Congestion charging

To make efficient use of limited road space and tunnels, the Government proposes to adopt the concepts of "congestion charging" and "efficiency first" in future upward and downward adjustment of toll levels of different types of vehicles so as to allocate more effectively the limited road space at tolled-tunnels. TD will undertake a study to comprehensively review the hierarchy and level of tolls of all government tolled tunnels and the Tsing Ma and Tsing Sha Control Areas, with a view to enabling efficient people carriers (e.g. franchised buses) and vehicles that support economic activities (e.g. goods vehicles) to enjoy lower tolls while requiring vehicle types with low carrying capacity (e.g. private cars) to pay higher tolls. The toll levels of TKO-LTT will also be covered in this study; subject to the findings of the study in due course, the toll levels of TKO-LTT may be adjusted, together with those of other tunnels in the longer run.

iii) Takeover of the BOT tunnels

The franchise of 2 BOT Tunnels, namely Western Harbour Crossing and

Tai Lam Tunnel will be expired in 2023 and 2025 respectively. Upon the Government's takeover, FFTS will also be implemented in these 2 tunnels.

10 Proposal (To be submitted by Respondent)

In consideration of the above basic requirements, please let us have your technical and operating proposals to **deliver the required services**. In particular, please address the following issues in your proposal for our information and consideration. Please also indicate which parts of your proposal are **commercial-in-confidence**.

10.1 Proposal for organization structure (e.g. Executive Team, Audit & Compliance Team, Information Security Team, Customer Service Team, etc.) manning level by rank, duties / responsibilities by rank, experience, level of expertise and salary range.

10.2 Proposal on the provision of premises in Hong Kong and service outlets / counter including the no. and location.

10.3 Detailed promotion programme for auto payment account registration in order to reduce the administrative workload for toll recovery.

10.4 Detailed business process to cater for the operational needs / characteristic of commercial vehicles (i.e. paragraph 7.5 above refers).

10.5 Payment means including the types and no. to be provided taking into account the usage rate, reliability and the transaction cost, etc.

10.6 Any suggestion on the Performance Pledge other than those required in paragraph 9.1.2 that are essential for ensuring an efficient and effective service delivery?

10.7 Proposal on the detailed pricing model and the payment schedule for all aspects of the required services. For variable operational payment, please provide charge rate by type of successful transaction including but not limited to a toll trip settled by auto payment, a toll trip settled by non-auto payment and toll exempted trip, etc. Different charge rates by transaction volume in tiers (including the transaction volume range) may be proposed, with due regard to the full implementation of all tolled tunnels and roads, and congestion charging.

10.8 Please fill in **Appendix IV** to provide a **budgetary estimation of your proposal**. You may use your own template if necessary, however, estimation with detailed breakdown is preferable.

10.9 As the required services cover different aspects including toll collection, toll recovery, customer service, account management, financial management, clearing service, IT service management etc., is there any advantage for a **joint venture arrangement** for the TSP to provide the required services?

10.10 The approach on achieving the target timeline stipulated in paragraph 8.9 and extension of scope of services of the online applications to cater all other government tolled tunnels and roads within two to three years upon commissioning of TKO-LTT.

10.11 The pre-requisites / provisions required in the FFTS backend system, including but not limited to data flow and throughput, interface protocol, development environment, etc. for the design, build and operation of the website and mobile application to deliver the scope of services and key project requirements as stipulated in Section 7, Section 8 and Section 9.

10.12 Any other suggestion on the project in any aspect for an effective and efficient delivery of services?

LC Paper No. CB(4)405/18-19(05)

For discussion
on 18 January 2019

Legislative Council Panel on Transport

Free-flow Tolling System for Tseung Kwan O – Lam Tin Tunnel and other Government Tolled-Tunnels and Roads

PURPOSE

This paper seeks Members' views on the funding application for upgrading **823TH "**Tseung Kwan O – Lam Tin Tunnel - Remaining Works" to Category A to construct a free-flow tolling system ("FFTS") for collection of tolls at Tseung Kwan O – Lam Tin Tunnel ("TKO-LTT"). Members' views are also sought on the Government's plan to roll out FFTS at other government tolled-tunnels and roads after the implementation at TKO-LTT.

PROJECT SCOPE AND NATURE

2. The scope of works of **823TH** which we propose to upgrade to Category A comprises –

(a) the construction of FFTS of TKO-LTT; and

(b) associated works for FFTS of TKO-LTT, including utilities works, electrical and mechanical works, communication enhancement works and other related ancillary works.

Subject to funding approval of the Finance Committee ("FC"), we plan to commence the construction of the proposed works in end 2019 for completion in late 2021.

JUSTIFICATION

TKO-LTT

FFTS

3. As shown in the map at **Annex A**, TKO-LTT will be an alternative route to the Tseung Kwan O Tunnel for coping with the traffic demand arising from developments in Tseung Kwan O ("TKO") and Kwun Tong districts. The construction of TKO-LTT is anticipated to be completed in late 2021. Due to geographical restrictions, there is no provision of toll plaza in TKO-LTT. As we previously briefed this Panel and the Public Works Sub-Committee ("PWSC") of Legislative Council ("LegCo") in 2016, the Government would study the feasibility of electronic toll collection for TKO-LTT and further consult LegCo.

4. The Civil Engineering and Development Department ("CEDD") commissioned a consultancy study in 2017 on the feasibility of using FFTS at TKO-LTT and carried out field trials. FFTS is a technology-based solution to enable collection of tunnel tolls without requiring a vehicle to stop at a toll booth. The study and field trials were substantially completed in mid-2018, recommending a FFTS at TKO-LTT with both Radio Frequency Identification ("RFID") (which requires affixing an RFID chip to the vehicle, i.e. the installation of in-vehicle units ("IVUs")), and Automatic Number Plate Recognition ("ANPR"). A privacy impact assessment for the field trial was also conducted in consultation with the Office of the Privacy Commissioner for Personal Data ("PCPD").

5. With the implementation of FFTS, the use of TKO-LTT by a vehicle will be detected by the field equipment of FFTS by –

(i) reading an IVU affixed to a vehicle; or

(ii) through recognition of the vehicle registration mark on a vehicle number plate through ANPR.

For (i), the detection requires electronic communication based on a radio frequency associated with an IVU. For (ii), the detection requires cameras to capture photo and video images of vehicles. After the detection, the data of a

vehicle using TKO-LTT would be sent to the backend system of FFTS and matched against the record of the Transport Department ("TD")'s VALID[1] system.

6. TD plans to collect tolls from vehicles using TKO-LTT through the following two methods –

(a) Automatic payment: The registered owner of a vehicle or his / her authorised agent may pay tolls upon using TKO-LTT through direct debit from a pre-registered payment account[2] with TD; and

(b) Payment in arrears (only for an interim period (see paragraphs 9 and 17 below)): For detected vehicles not affixed with IVUs with pre-registered payment accounts or when automatic payment is not successful[3], the registered owner of a vehicle or his / her authorised agent may make toll payments manually through designated channels[4] within a grace period (say, seven calendar days).

7. The works of **823TH** include the development, design and construction of toll gantries and field equipment located within the tunnel area to capture vehicles' data passing through TKO-LTT, the development of computer systems for data storage, account management and toll clearing, and the provision of ancillary works for the implementation of FFTS and TKO-LTT.

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[1] The VALID system refers to Vehicles and Drivers Licensing Integrated Data system owned and operated by TD. It provides services relating to the registration and licensing of vehicles and drivers, and also supports the operational requirements of other relevant government departments under various application subsystems.

[2] For example, bank accounts, debit cards, credit cards and stored value facility accounts.

[3] Failure of automatic payment through pre-registered payment accounts may be due to rejection from financial institutions, malfunction of IVUs or other technical or operational reasons. Registered owners who use automatic payment will be notified of unsuccessful payments. To enable timely notification of outstanding payments by SMS (regardless of using automatic payment or payment in arrears), we propose to require vehicle owners to provide a mobile phone number when they renew / apply for vehicle licences.

[4] For example, online payment through website and mobile application. The registered owner or his / her authorised agent may also choose to open an account with TD, albeit without automatic payment function, for reviewing of journeys and toll payment records as well as receiving toll payment notifications.

8. To enable toll payment by FFTS at TKO-LTT upon its commissioning in late 2021, and having considered that vehicle owners are required to renew vehicle licences either every four or twelve months, TD plans to commence issuing IVUs to registered vehicle owners at licencing offices in the third quarter of 2020. An IVU will normally be a self-adhesive sticker tag affixed on the windscreen of a vehicle[5] (as shown in **Annex B**). The IVU will store two pieces of unencrypted digital data, namely Tag ID[6] and Vehicle ID[7]. Field equipment of FFTS and other IVU applications will read data on the IVU to identify the vehicle. Both Tag ID and Vehicle ID will not be bundled with any personal particulars which could identify the vehicle owner. A preliminary privacy impact assessment on the overall design of IVU indicated that no personal data privacy issue of data in IVUs and field equipment is envisaged, and TD is further working to mitigate personal data privacy risks for the backend system of FFTS in consultation with PCPD. Illustrations showing the workflow of detection and payment for vehicles with and without IVUs are at **Annex C**.

9. The first issue of IVUs to registered vehicle owners will be free-of-charge. Subsequent re-issuance, including replacement, of IVUs will be at the cost of the vehicle owner on a cost-recovery basis except otherwise agreed by the Commissioner for Transport ("the Commissioner"). TD plans to mandate toll payment by IVU detection with automatic payment (i.e. paragraph 6(a) above) upon the implementation of FFTS at all government tolled-tunnels (see paragraph 17 below). Apart from payment of tunnel toll by FFTS, the IVU will also facilitate the collection of real-time traffic data for traffic management and big data analysis, and serve other possible functions such as payment of parking fees by remote means as part of the smart mobility initiatives.

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[5] For a very small portion of vehicles, the material of the whole windscreen contains a metal oxide which may affect the detection by FFTS field equipment. For these vehicles, the IVU will be affixed to the headlamp.

[6] Tag ID is a unique serial number of RFID tag, which is imprinted by the manufacturer ***at factory***.

[7] Vehicle ID is a unique identification number of a vehicle assigned by TD, which is currently shown on the paper vehicle licence. The Vehicle ID is ***not*** equivalent to vehicle registration mark (i.e. licence plate number).

10. TD will engage a toll service provider ("TSP") through open tender for handling the toll collection by FFTS, toll recovery, as well as providing account management and customer services. To cater for the growing diversity in automatic payment means, the number and forms of payment means that may be provided by the TSP will be one of the tender assessment criteria[8].

Proposed Toll Level

11. According to the existing policy, tolls of government tolled-tunnels and roads are determined in line with the "cost-recovery" and "user-pays" principles. The Government will take into account a number of factors, including traffic management, costs of the provision of the relevant tunnels and roads (including the capital costs spent), the toll of alternative routes, as well as public affordability and acceptability, etc.

12. Having regard to the function of TKO-LTT as an alternative route to TKO Tunnel, and being part of Route 6[9] which will be an essential highway infrastructure to support new developments in the western and eastern part of Kowloon, we propose that TKO-LTT should charge the same toll level as TKO Tunnel (i.e. a flat toll of $3 for all types of vehicles) upon its commissioning.

13. Similar to the existing arrangements of manual toll payment, certain types of vehicles would be exempted from tolling, such as vehicles used by a disabled person. Such exemption will be effected in the backend system of FFTS.

14. We note the various suggestions from stakeholders on the toll level of TKO-LTT, including that the tunnel should be toll-free or charge toll levels higher / lower than TKO Tunnel. After considering the traffic impact, we do not recommend either suggestion. Making TKO-LTT toll-free will attract excessive traffic to its connecting roads, thereby defeating its purpose of providing an east-west express link in Kowloon as part of Route 6. On the

[8] To cater for emerging e-payment technology, TD will explore the feasibility to include a contract provision to require the TSP to propose and provide additional payment means for automatic payment upon request by TD.

[9] Route 6 comprises the Central Kowloon Route ("CKR"), Trunk Road T2 and Cha Kwo Ling Tunnel, and TKO-LTT. The construction of CKR started in end-2017 for completion in 2025. Subject to funding approval by the Legislative Council Finance Committee the construction of Trunk Road T2 and Cha Kwo Ling Tunnel is targeted to commence in the second half of 2019 for completion in 2025 in tandem with CKR.

other hand, if TKO-LTT charges a toll different from TKO Tunnel, it will not be conducive to effective traffic diversion from TKO Tunnel.

15. To make efficient use of limited road space and tunnels, the Government proposes to adopt the concepts of "congestion charging" and "efficiency first" in future upward and downward adjustment of toll levels of different types of vehicles so as to allocate more effectively the limited road space at tolled-tunnels. To this end, TD will undertake a study to comprehensively review the hierarchy and level of tolls of all government toll-tunnels and the Tsing Ma and Tsing Sha Control Areas, with a view to enabling efficient people carriers (e.g. franchised buses) and vehicles that support economic activities (e.g. goods vehicles) to enjoy lower tolls while requiring vehicle types with low carrying capacity (e.g. private cars) to pay higher tolls. The toll levels of TKO-LTT will be covered in this study; subject to the findings of the study in due course, the toll levels of TKO-LTT may be adjusted, together with those of other tunnels in the longer run.

FFTS at Other Government-tolled Tunnels and Roads

16. As stated in the Hong Kong Smart City Blueprint, the Government will develop the use of IVUs for allowing tunnel toll payment without stopping at toll booths as one of the key smart mobility initiatives. FFTS allows vehicles to pay tolls more efficiently, avoiding disruption to traffic flow arising from the need to stop at toll booths for manual toll payment. In addition, with the implementation of FFTS, the existing toll booths at toll plazas could be removed, potentially freeing up some space for other transport related purposes, such as improvement of existing bus stops.

17. To ensure the smooth transition from toll booth-based toll collection to FFTS, and so that road users can adapt to the change of traffic management schemes of the tunnels upon transition, TD plans to roll out FFTS in phases at other government-tolled tunnels and roads[10], with an indicative timing of completing the changes within about two to three years after the

[10] Covering Cross-Harbour Tunnel, Eastern Harbour Crossing, Lion Rock Tunnel, TKO Tunnel, Shing Mun Tunnels, Aberdeen Tunnel and Tate's Cairn Tunnel and Eagle's Nest and Sha Tin Heights Tunnels, Lantau Link, and Tuen Mun-Chek Lap Kok Link Subsea Tunnel. As for Western Harbour Crossing and Tai Lam Tunnel, both of which are Build-Operate-Transfer tunnels, TD plans to implement FFTS upon the Government's take-over of ownership respectively in August 2023 and May 2025.

commissioning of TKO-LTT[11]. TD will, in collaboration with relevant departments, start preparatory work in 2019, including detailed design of the temporary and permanent traffic management schemes, associated civil, electrical and mechanical works such as removal of toll booths, modification of road layout, as well as installation of overhead gantries, field equipment, roadside cabinets and cable ducts.

18. As toll collectors will not be required after the complete implementation of FFTS, TD will set out in the renewed management, operation and maintenance contract requiring the tunnel operators to arrange re-deployment of the toll collectors by providing re-training for them to take up other tunnel posts, such as Traffic Officer; as well as to plan in advance for natural attrition. TD also plans to make provisions in the tender documents of the TSP contract requiring the TSP to make offer to the toll collectors of existing Government tunnels to take up FFTS related duty, e.g. image reviewing and toll recovery services.

Legislative Backing

19. To provide legislative backing for implementing FFTS at TKO-LTT and other government tolled-tunnels and roads, we plan to introduce legislative amendments into LegCo within 2019. The legislative amendments will enable toll collection by FFTS when the relevant equipment is in place, and provide for the necessary implementation details and procedures for FFTS. Since vehicles do not need to stop for toll payment by FFTS, if a vehicle fails to pay toll, there is practical difficulty to identify the driver. To discourage toll evasion and reduce the administrative cost to recover unpaid tolls, certain measures are also proposed –

(a) the person who is responsible for paying tolls by FFTS for using government tolled-tunnels and roads will be specified as the registered owner of a vehicle[12] ;

[11] The service provided by Autotoll Limited will be running in parallel at individual tunnels before the implementation of FFTS at that particular government tolled-tunnels and roads. TD will maintain liaison with Autotoll Limited and operators of government tolled-tunnels and road for the transitional arrangement of discontinuation of existing Autotoll service.

[12] Currently under the Road Tunnels (Government) Regulations (Cap. 368A), the driver of a vehicle is required to pay toll at the toll booth for using a government tolled-tunnel.

(b) similar to requirements currently prescribed in Tsing Ma Control Area (General) Regulation (Cap. 498B) and Tsing Sha Control Area (General) Regulation (Cap. 594A), a surcharge will be imposed on a cost-recovery basis if toll payment is not settled within the grace period (say, seven days);

(c) for convicted toll evasion cases, subject to consultation with the Judiciary, the magistrate will be provided with the power to make an order directing the Commissioner to refuse the renewal or transfer of licence of a vehicle until the outstanding tolls and surcharges are paid;

(d) similar to offences currently prescribed in Cap. 498B and Cap. 594A [13], it will be an offence if a person willfully prevents the use of a government tolled-tunnel or road by a vehicle being detected by FFTS field equipment (such as by interfering with, damaging, or altering an IVU or tempering with FFTS equipment and related systems); and

(e) to mandate toll payment by IVU with automatic payment upon all government tolled-tunnels and roads have been installed with FFTS.

Publicity

20. To enhance motorists' awareness of FFTS and ensure that they are familiar with the payment arrangements, the Government will conduct briefing sessions for stakeholder groups[14] in 2019, and launch publicity campaigns in 2020 and 2021 before issuing IVUs to vehicle owners and the commissioning of TKO-LTT respectively.

[13] A person who alters, interferes with or erases the coded data of an electronic toll pass (i.e. an Autotoll tag), damages an electronic toll pass or attempts to use an altered or damaged electronic toll pass for toll payment commits an offence and is liable on conviction to a fine at level 2 and to imprisonment for six months.

[14] For example, transport trade groups, Sai Kung District Council and Kwun Tong District Council.

FINANCIAL AND OTHER IMPLICATIONS

21. The estimated capital cost of the proposed works under **823TH** (i.e. paragraph 2 above), which we propose to upgrade to Category A, will be about $330.2 million in money-of-the-day ("MOD") prices.

22. Based on the development and experience of **823TH**, the estimated capital cost of implementing FFTS at other government tolled-tunnels and roads is $945.98 million. The cost mainly covers the provision and installation of FFTS field equipment and facilities[15], development and modification of the backend software system, essential modification of existing toll plazas and the procurement of IVU tags and readers. The provision required will be reflected in the Estimates of the relevant financial years.

23. The implications on the environment, heritage, land acquisition and traffic for **823TH** are set out in **Annex D**.

PUBLIC CONSULTATION

24. At the meeting of this Panel on 23 March 2016 and the PWSC meeting on 21 May 2016 for the funding application of **872TH** for the construction of the main tunnel and associated works for TKO-LTT, Members noted that the Government would consider electronic toll collection for TKO-LTT, and the factors which would be taken into account in determining the toll levels of TKO-LTT. The Kwun Tong District Council and Sai Kung District Council were also briefed on the possible use of electronic toll collection for TKO-LTT in 2012 and 2015 respectively.

BACKGROUND

25. The Government upgraded **823TH** to Category B in April 2007. On 10 May 2013, the FC approved the upgrading of part of **823TH** to Category A to become **862TH** "Tseung Kwan O – Lam Tin Tunnel – detailed design and site investigation" an approved project estimate of $196.0 million in MOD prices for carrying out the detailed design and site investigation for the

[15] Unlike TKO-LTT, at some government tolled-tunnels, toll gantries do not need to be installed as the field equipment may be installed on existing tunnel infrastructure.

TKO-LTT and associated works. The detailed design and site investigation works have been substantially completed. On 17 June 2016, the FC approved the upgrading of part of **823TH** to Category A to become **872TH** "Tseung Kwan O – Lam Tin Tunnel – main tunnel and associated works" at an approved project estimate of $15,093.5 million in MOD prices.

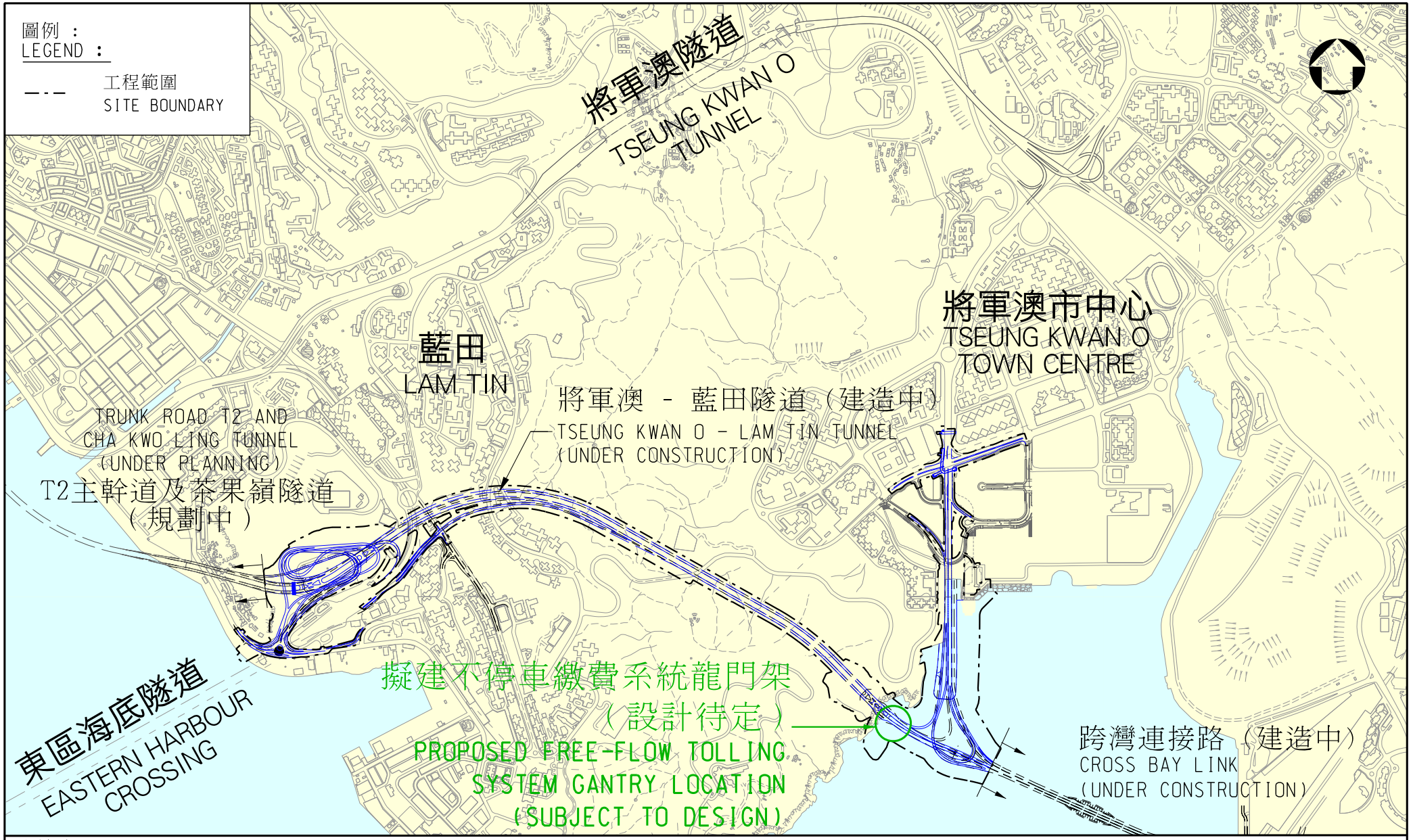
26. The TKO-LTT project comprises the construction of an approximately 3.8-kilometre-long dual two-lane carriageway connecting Po Shun Road of TKO and the Cross Bay Link (which is under construction) in the east; with the proposed Trunk Road T2 and Cha Kwo Ling Tunnel at Lam Tin Interchange and Eastern Harbour Crossing in the west. TKO-LTT will be an alternative route to the TKO Tunnel for coping with the traffic demand arising from developments in TKO and Kwun Tong districts.

27. The Government published the Hong Kong Smart City Blueprint in December 2017, outlining strategies and initiatives to develop Hong Kong into a smart city. Smart mobility is one of the six major areas in the Hong Kong Smart City Blueprint.

WAY FORWARD

28. We plan to submit the proposal for upgrading the proposed works of **823TH** detailed in paragraph 2 to Category A to the PWSC for their support, and to seeking funding approval from the FC, with a view to starting the construction in end 2019. We also target to introduce legislative amendments into LegCo within 2019 to provide legislative backing for implementing FFTS at TKO-LTT and other government tolled-tunnels and roads.

Transport and Housing Bureau
Transport Department
Civil Engineering and Development Department
January 2019



圖則名稱 drawing title

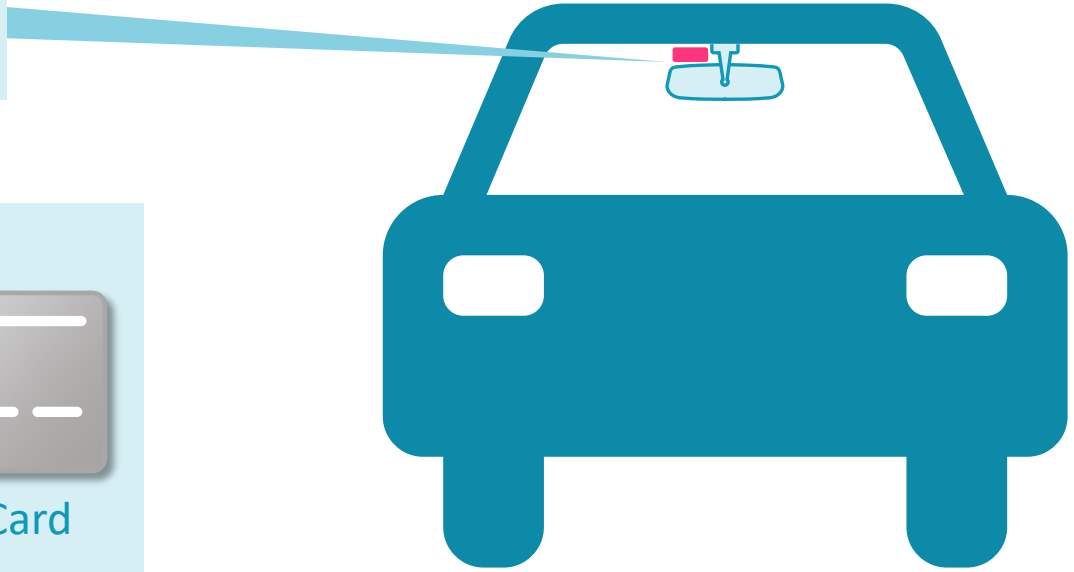
工務計劃第823TH號 - 將軍澳 - 藍田隧道
將軍澳 - 藍田隧道餘下工程 - 不停車繳費系統分布圖

PWP ITEM NO. 823TH - TSEUNG KWAN O - LAM TIN TUNNEL
LAYOUT PLAN OF TSEUNG KWAN O - LAM TIN TUNNEL REMAINING WORKS FOR FREE-FLOW TOLLING SYSTEM

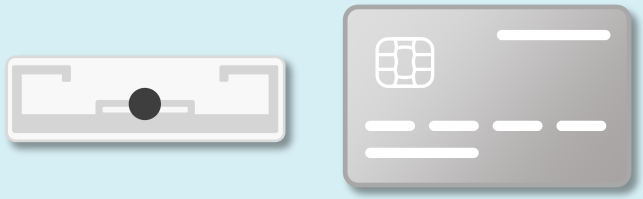
Annex B

In-Vehicle Unit

The self-adhesive IVU sticker tag is affixed on the windscreen next to the rear view mirror



Size Comparison



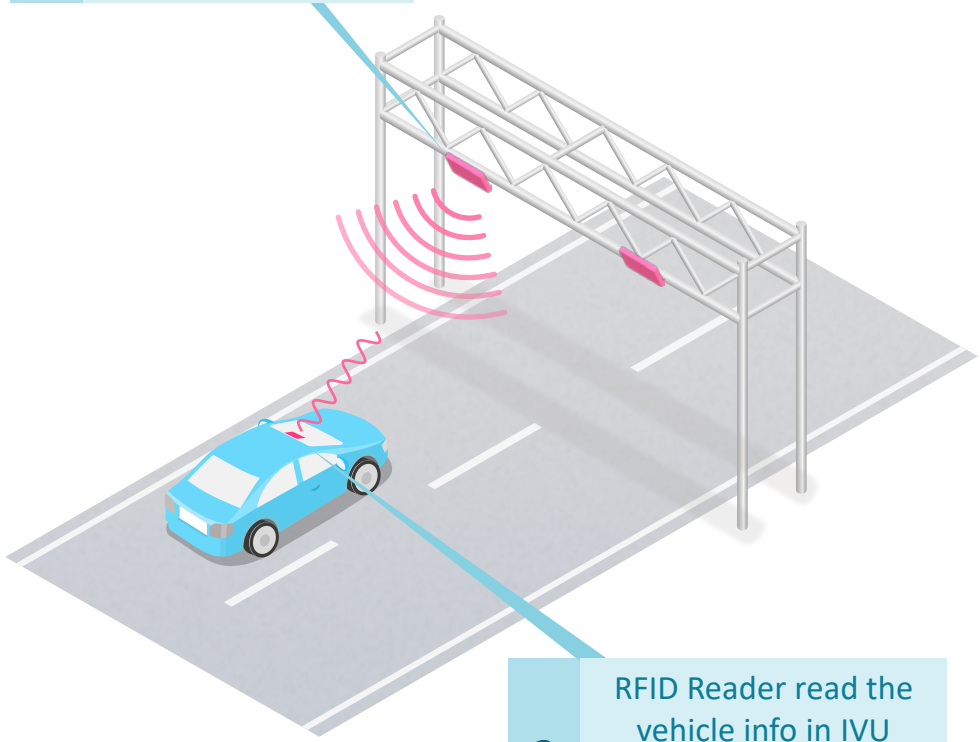
Annex C

Free-Flow Tolling System

Vehicle with IVU

Vehicle Detection

1 RFID Reader detects IVU of Vehicle



2 RFID Reader read the vehicle info in IVU

RFID IVU Tag

Toll Payment

Vehicle with IVU and Auto Payment Account passes through tolled-tunnel/road

Backend System processes Auto Payment with notification on vehicle trip

successful

Auto Payment Settled

Payment Completed

unsuccessful

Notification to registered vehicle owner on unsuccessful Auto Payment

To be paid in arrears

settled within grace period

not settled within grace period

Notification to registered vehicle owner demanding for unpaid toll plus surcharge

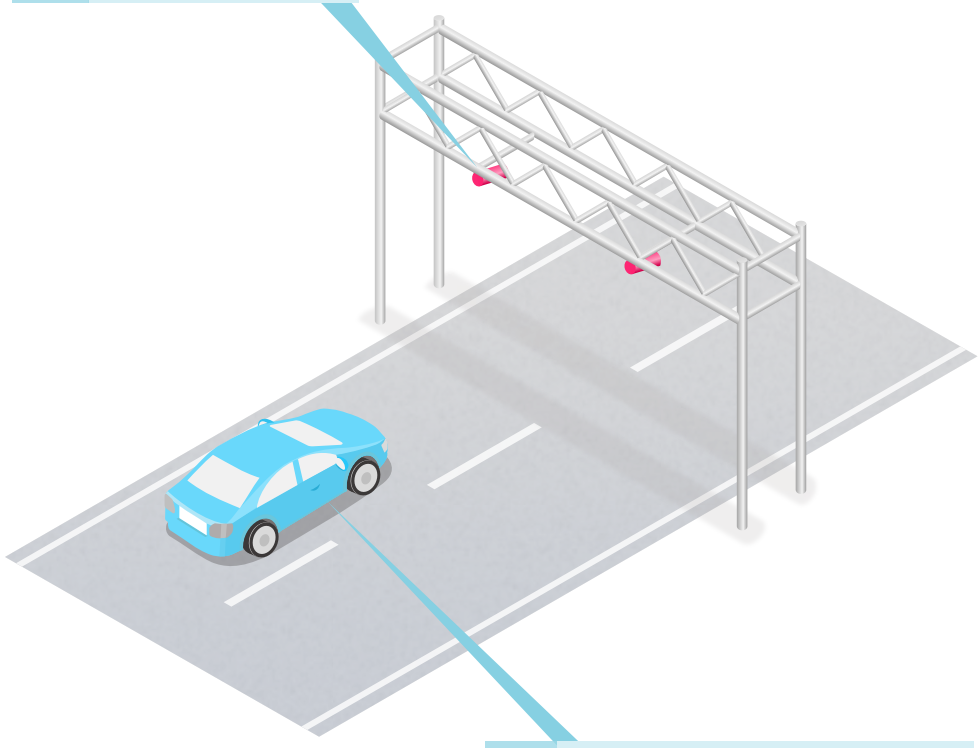
*All pictures shown are for illustration purpose only. Actual arrangement of gantry and field equipment may vary.

Free-Flow Tolling System

Vehicle without IVU

Vehicle Detection

1 ANPR cameras capture images



2 ANPR system recognizes Vehicle Registration Marks

Toll Payment

Vehicle without IVU passes through tolled-tunnel/road

↓

Notification to registered vehicle owner on vehicle trip and remind payment

↓

To be paid in arrears

settled within grace period → **Payment Completed**

not settled within grace period → **Notification to registered vehicle owner demanding for unpaid toll plus surcharge**

*All pictures shown are for illustration purpose only. Actual arrangement of gantry and field equipment may vary.

Annex D

IMPLICATIONS ON THE ENVIRONMENT, HERITAGE, LAND ACQUISITION AND TRAFFIC FOR 823TH

Environmental Implications

The proposed FFTS of TKO-LTT is not a designated project ("DP") under the Environmental Impact Assessment ("EIA") Ordinance (Cap. 499) and will not cause any long-term adverse environmental impact. It is the remaining works of TKO-LTT project which is a DP requiring an environmental permit ("EP") for its construction and operation. The Director of Environmental Protection approved the EIA report of TKO-LTT project in July 2013 and issued an EP in August 2013 under the EIA Ordinance.

2. During construction, Civil Engineering and Development Department ("CEDD") will control short-term noise, dust and site run-off nuisances to within established standards and guidelines through the implementation of pollution control measures in the relevant contract. These include the use of silencers, mufflers, acoustic lining or shields for noisy construction activities, frequent cleaning and watering of the site, and the provision of wheel-washing facilities.

3. At the planning and design stages, CEDD have considered adopting measures in the proposed works and construction sequences to reduce generation of construction waste where possible. In addition, CEDD will require the contractors to re-use inert construction waste 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 facilities[1]. CEDD will encourage the contractors to maximise the use of recycled and recyclable inert construction waste, and the use of non-timber formwork to further reduce the generation of construction waste.

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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 (Cap. 354N). Disposal of inert construction waste in public fill reception facilities requires a license issued by the Director of Civil Engineering and Development.

4. At the construction stage, CEDD will require the contractors 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. CEDD will ensure that the day-to-day operations on site comply with the approved plans. CEDD will require the contractors to separate the inert portion from the non-inert construction waste on site for disposal at appropriate facilities. CEDD 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.

Heritage Implications

5. The proposed works 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

6. The proposed works do not require acquisition and clearance of private land.

Traffic Implication

7. As disruption to the traffic flow due to the need of stopping the vehicles at toll booths for toll payment will be eliminated, FFTS will benefit the operations of TKO-LTT vis-à-vis other tunnels with toll booths.

* * * * * * *

Appendix II

Traffic figures and existing toll level of tunnels and roads in Hong Kong

	A. Government Tunnels							B. Control Areas			C. Build-Operate-Transfer Tunnels	
								Tsing Ma Control Area	Tsing Sha Control Area			
	Cross Harbour Tunnel	Eastern Harbour Crossing	Aberdeen Tunnel	Lion Rock Tunnel	Shing Mun Tunnels	Tseung Kwan O Tunnel	Tate's Cairn Tunnel	Lantau Link	Eagle's Nest Tunnel	Sha Tin Heights Tunnel	Western Harbour Crossing	Tai Lam Tunnel
Average daily vehicles in 2018	**112 400**	**78 000**	**60 200**	**91 000**	**54 100**	**93 500**	**61 600**	**96 800**	**60 100**		**69 100**	**61 500**
Existing toll level	HK$							HK$			HK$	
Motor cycles, motor tricycles	8	13	Flat Toll: 5 *	Flat Toll: 8 *	Flat Toll: 5 *	Flat Toll: 3 *	15	10	Flat Toll: 8 *		25 ^	22 ^
Private cars	20	25					20	15			70 ^	48 ^
Taxi	10	25 / 15 #					20	15			65 ^	48 ^
Public light buses	10	38					23	20			80 ^	100 ^
Private light buses	10	38					24	20			80 ^	100 ^
Light goods vehicles, special purpose vehicle of a permitted gross vehicle weight not exceeding 5.5 tonnes	15	38					24	20			80 ^	49 ^
Medium goods vehicles, special purpose vehicle (other than an articulated vehicle) of a permitted gross vehicle weight exceeding 5.5 tonnes but not exceeding 24 tonnes	20	50					28	25			105 ^	55 ^
Heavy goods vehicles, special purpose vehicle (other than an articulated vehicle) of a permitted gross vehicle weight exceeding 24 tonnes	30	75					28	40			135 ^	60 ^
Public and private single-decked buses	10 *	50 *					32 *	20 *			130 ^	143 ^
Public and private double-decked buses	15 *	75 *					35 *	30 *			185 ^	168 ^
Each additional axle in excess of two	10 *	25 *	NA	NA	NA	NA	24 *	NA	NA		30 ^	Free of charge ^
Articulated vehicle	NA	NA	NA	NA	NA	NA	NA	40	8		NA	NA
Vehicle towing another vehicle	NA	NA	NA	NA	NA	NA	NA	Toll equivalent to amount applicable to both types or classes of vehicle involved *	16		NA	NA
Vehicle (other than articulated vehicle) towing a trailer	NA	NA	NA	NA	NA	NA	NA	Toll equivalent to amount applicable to type or class of vehicle and $15 in respect of the trailer	16		NA	NA

Note: # In which no passenger is carried when using the tunnel and in respect of which the tolls for the use of the tunnel are settled at toll booths other than autotoll booths

^ Concessionary tolls in effect until further notice

* Except Franchised Buses

Appendix III - List of reports to be submitted by TSP monthly and ad-hoc as required when necessary

All reports related to operations and finance, including but not limited to the followings:

Operations Reports/Records (by tunnel / road):

1. Daily / Hourly traffic figures (by vehicle class, bound, DAS ID)
2. Daily toll revenue (by payment means, vehicle class)
3. Daily toll exempted for government vehicles and disabled driver vehicles (by no. of vehicle, vehicle class)
4. Daily toll refund (by vehicle class, reason, payment means)
5. Toll reimbursement (by different groups of vehicles, payment means)
6. Daily underpayment and overpayment (by vehicle class, payment means)
7. Surcharge received (by payment means, transaction ID with respect to the underpayment of toll)
8. No. of outstanding surcharge case and No. of cases referred to the Prosecutions Unit of TD
9. No. of reminder / demand notice issued via mobile application, SMS and / or by post
10. No. of dispute cases being handled
11. No. of complaint and enquiry cases (by nature)
12. No. of account registered / terminated (monthly and accumulated, by vehicle class, payment means, registration means e.g. website, mobile application)
13. Staff level, average monthly salary and turnover rate
14. Reconciliation of expected gross and net toll revenue in the relevant month to the actual revenue deposited to TD's nominated account

Financial Reports (by tunnel / road):

1. Daily, weekly, monthly and annually (where appropriate) settlement records with breakdown indicating (i) settlement for toll charged by means of detection of IVU and ANPR (ii) settlement by means of auto payment and non-auto payment means; (iii) toll and surcharges collected from different clearing houses (e.g. financial institutions including banks and licensees of

store value facilities) and; refund made by the TSP and deduction of reimbursement during the reporting period

2. A consolidated debtor report showing opening and closing balances and movement of debtor balance during the reporting period and an ageing report for toll and associated surcharge outstanding / overdue analyzed into amount receivable for individual payee, showing amount outstanding and overdue by calendar / business days and amounts involved in prosecution
3. A summary showing the annual toll and surcharge charged (regardless the amount has been settled or not as at year end) in each tunnel / road where the amounts should be reconciled with the settlement report and ageing report
4. Annual assurance report showing the revenue collected, cost information (e.g. staff cost, transaction cost paid to the clearing houses) and staff turnover (if appropriate) and / or audited financial statements for TSP indicating the revenue and expenditure incurred for provision of toll collection services

運輸署 Transport Department

Appendix IV – Budgetary Estimation of Your Proposal
(Please use a separate sheet if necessary)

To: Infrastructure Management Section of TD
(Attn.: Ms. Kitty CHAN)
Fax: (852) 3158 2398
Email: kittychan@td.gov.hk

Request for Information
on Provision of Toll Collection Services at Government Tolled Tunnels and Roads
installed with Free-flow Tolling System

Item	Description	Annual Charge for the 1st Contract Year (HK$)	Annual Charge for the 2nd Contract Year (HK$)	Annual Charge for the 3rd Contract Year (HK$)	Annual Charge for the 4th Contract Year (HK$)	Annual Charge for the 5th Contract Year (HK$)	Annual Charge for the 6th Contract Year (HK$)
Design and Build of User Interface for Payment							
1	Design and development of web application and mobile application including payment service and all hardware setup						
2	Maintenance cost for all software and hardware and broadband services						

Item	Description	Annual Charge for the 1st Contract Year (HK$)	Annual Charge for the 2nd Contract Year (HK$)	Annual Charge for the 3rd Contract Year (HK$)	Annual Charge for the 4th Contract Year (HK$)	Annual Charge for the 5th Contract Year (HK$)	Annual Charge for the 6th Contract Year (HK$)
3	System enhancement for other tolled tunnels and roads (including software, hardware and broadband services)						
4	Web service hosting fee						
5	Software license fee						
Operation Services							
6	Customer Service (including complaint and enquiry handling)						
7	Account Management (including account registration, change of particulars / payment method / means, cancellation of account)						
8	Rental for customer service centres / service outlets and other accommodation cost						
9	Marketing and promotion cost						
10	Telecommunication cost (including issue of SMS)						
11	Image reviewing						

Item	Description	Annual Charge for the 1st Contract Year (HK$)	Annual Charge for the 2nd Contract Year (HK$)	Annual Charge for the 3rd Contract Year (HK$)	Annual Charge for the 4th Contract Year (HK$)	Annual Charge for the 5th Contract Year (HK$)	Annual Charge for the 6th Contract Year (HK$)
12	Toll recovery (including postage cost for issuing demand notice and reminder for recovery of outstanding payment)						
13	Enforcement operation for suspected toll evasion cases						
Financial Management							
14	Finance charges (including bank guarantee charges)						
15	Transaction cost paid to clearing houses						
General							
16	General administrative cost						
17	Staff cost for administrative team						
18	Utilities						
19	Cost for audit, compliance and insurance						
20	Others (please provide breakdown as appropriate)						

運輸署 Transport Department

Appendix V – Basic Information of the Respondent
(Please use a separate sheet if necessary)

To: Infrastructure Management Section of TD
(Attn.: Ms. Kitty CHAN)
Fax: (852) 3158 2398
Email: kittychan@td.gov.hk

Request for Information
on Provision of Toll Collection Services at Government Tolled Tunnels and Roads installed with Free-flow Tolling System

1. Company name and address
Company name: _____
Address: _____
_____
_____
Telephone No.: _____
Email address: _____

2. Contact name and title
Name: _____
Title: _____

3. Business Nature
Business nature: _____
Place of business: _____
Past experience in relevant field:

Field	Experience (year)	Client / Project
Design and Build of IT System		
Wireless Network		
Mobile Payment		
Revenue Collection		
Customer Service		
Financial Management		
Others (please specify)		

運輸署 Transport Department

Appendix VI – Register Form for RFI Briefing
(Please use a separate sheet if necessary)

To Infrastructure Management Section of TD
(Attn.: Ms Kitty CHAN)
Fax: (852) 3158 2398
Email: kittychan@td.gov.hk

Request for Information
on Provision of Toll Collection Services at Government Tolled Tunnels and Roads installed with Free-flow Tolling System

Briefing

Date: 15 April 2019 (Monday)
Time: 2:30 PM – 3:30 PM (Hong Kong Time)
Venue: Room 4110A & 4110B, 41/F, Immigration Tower, 7 Gloucester Road, Wan Chai, Hong Kong.

Please be confirmed that we will attend the briefing for the RFI on the captioned project.

Company: _____

Person 1
Name in BLOCK LETTER: _____
Position in the Company: _____
Contact Tel. No.: _____
Email: _____

Person 2
Name in BLOCK LETTER: _____
Position in the Company: _____
Contact Tel. No.: _____
Email: _____