

## ITEM FOR FINANCE COMMITTEE

**CAPITAL WORKS RESERVE FUND  
HEAD 710 – COMPUTERISATION  
Hong Kong Police Force  
New Subhead “Development of Traffic e-Enforcement System”**

Members are invited to approve the creation of a new commitment of \$351,586,000 for the development of a Traffic e-Enforcement System.

### PROBLEM

The Hong Kong Police Force (the Police) needs to develop a Traffic e-Enforcement System to replace the existing manual-based operation for traffic enforcement to further enhance enforcement accuracy and efficiency. This can in turn help ensure the more proper and effective use of limited road space, enhance road safety and alleviate traffic congestion.

### PROPOSAL

2. The Commissioner of Police, with the support of the Secretary for Transport and Housing and the Government Chief Information Officer, proposes creating a new commitment of \$351,586,000 to develop a Traffic e-Enforcement System.

### JUSTIFICATION

3. The Police is responsible for issuing Fixed Penalty Notices (FPNs) to traffic offenders in accordance with the Fixed Penalty (Traffic Contravention) Ordinance (Cap. 237) and the Fixed Penalty (Criminal Proceedings) Ordinance (Cap. 240). In general, the traffic contraventions under Cap. 237 refer to illegal parking offences (Cap. 237 offences) and the fine is \$320, whereas those under Cap. 240 refer to moving offences such as speeding, failing to comply with traffic signals, etc. (Cap. 240 offences) and the fine varies from \$230 to \$1,000 depending

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on the offence involved. As for traffic contraventions that are not covered under Cap. 237 and Cap. 240 such as jaywalking and dangerous driving (Cap. 374 offences), the Police submits “Traffic Summons Application Forms” to the Judiciary under the Road Traffic Ordinance (Cap. 374), and the Judiciary will then issue the summons to the road traffic offenders.

4. Since 1970, the frontend and backend processes of traffic enforcement have been operated manually by frontline law enforcement officers and backend clerical staff of the Police respectively, using paper-based records and inputting relevant data into the computer afterwards. The processes are time-consuming and involve considerable manpower. For serving FPNs for different traffic offences, a frontline law enforcement officer has to handwrite details on the FPN, including the vehicle registration mark of the vehicle concerned, location, time of the offence, etc. and the officer also has to record on his/her notebook the offence details such as the discussion with the driver and sketches of the incident scene. The whole process generally takes 15 to 30 minutes, and longer time is required for complicated cases. As for the backend processes, supporting clerical staff have to sort and check the duplicates of FPNs manually and then input data into various backend systems. If a vehicle owner or driver raises enquiries or disputes liability after receiving an FPN, supporting clerical staff have to retrieve the paper records or wait until the offence details have been input into the computer system before they can deal with various enquiries, payment issues and related disputes. As for traffic contraventions prosecuted by way of summons (i.e. Cap. 374 offences), a frontline law enforcement officer has to fill in the “Traffic Summons Application Form” for supporting clerical staff to input the details into the “Case and Summons Management System” of the Judiciary, in order to apply to the Judiciary for issuance of summons to the offender. Between 2017 and 2020, the Police stepped up efforts in combating traffic contraventions and the total number of FPNs and summons applications issued under Caps. 237, 240 and 374 increased from 2.4 million in 2017 to 3.2 million<sup>1</sup> in 2020, representing an increase of 33%. If we continue to rely on the current manual-based operation in traffic enforcement, it would be difficult to effectively manage a larger number of traffic offence cases and further enhance traffic enforcement actions.

5. Besides, manual-based operation in traffic enforcement is prone to human errors, such as illegible handwriting on FPNs and “Traffic Summons Application Forms”, incorrect or missing data input, etc. For example, between 2017 and 2020, the Police issued on average about 1.7 million FPNs under Cap. 237 for illegal parking each year, among which 6 700 FPNs (i.e. about 0.39% on average) were withdrawn due to human errors.

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<sup>1</sup> The figure for 2020 includes the electronic FPNs (e-FPNs) issued under the “e-Ticketing Pilot Scheme” (the Pilot Scheme) implemented by the Police since mid-March 2020. Please refer to paragraphs 6 and 7 below for details.

## The Pilot Scheme

6. In March 2020, the Police launched the Pilot Scheme for Cap. 237 offences. In tandem with the launch of the Pilot Scheme, the Transport Department (TD) has been issuing vehicle licences with encrypted QR code<sup>2</sup> to new or renewal applicants since April 2020. Under the Pilot Scheme, frontline law enforcement officers use their mobile devices to input data of illegally parked vehicles or extract relevant data through scanning the encrypted QR code printed on the vehicle licences displayed on the vehicles' windscreens. The frontline law enforcement officers would also take photographs of the incident scene as evidence of illegal parking, print the e-FPNs instantly and fix them on vehicles' windscreens, and upload all the details captured to the backend system for further processing. The Pilot Scheme reduces human errors in issuance of handwritten FPNs and manual data input, thereby enhancing the overall enforcement accuracy. The Police expanded the Pilot Scheme in March 2021 to cover Cap. 240 offences. To cater for this expansion, TD has also started issuing driving licences with encrypted QR code<sup>3</sup> since then to enable frontline law enforcement officers to extract through mobile devices the details of the drivers who committed traffic offences. The expanded Pilot Scheme has been running smoothly thus far.

7. Between April and December 2020 (i.e. within nine months after the launch of the Pilot Scheme), the Police issued a total of 2.2 million of FPNs against illegal parking, of which more than 40% (about 1 million) were e-FPNs. The total number of FPNs against illegal parking issued in 2020 was about 2.7 million, representing an increase of 33% as compared with that in 2018<sup>4</sup>. The increase is mainly attributable to the shorter time required for issuing e-FPNs<sup>5</sup>. Besides, in 2020, only about 800 e-FPNs (i.e. about 0.08% of the total number of e-FPNs issued) were withdrawn due to human errors. The Pilot Scheme proved that e-FPNs can enhance the overall accuracy and efficiency of traffic enforcement in combating illegal parking.

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<sup>2</sup> The encrypted QR code on a newly issued vehicle licence, carries the same types of printed information shown on the vehicle licence. As at 30 April 2021, TD has issued about 830 000 vehicle licences with encrypted QR code.

<sup>3</sup> Similar to vehicle licences, encrypted QR code on driving licences carries the same types of printed information shown on the driving licence. As at 30 April 2021, TD has issued about 530 000 driving licences with encrypted QR code.

<sup>4</sup> Due to the public order events in 2019, the Police reduced manpower deployment for traffic enforcement. As such, the traffic enforcement figure in 2019 is not taken for comparison.

<sup>5</sup> The Police deployed largely the same level of manpower for traffic enforcement in 2018 and 2020. In general, it takes about five to 15 minutes for issuing an e-FPN. Ten to 15 minutes can be saved as compared with the time for issuing a handwritten FPN.

## Proposed Traffic e-Enforcement System

8. Having regard to the success of the Pilot Scheme, the Government proposes developing a Traffic e-Enforcement System for processing all traffic offences under Caps. 237, 240 and 347. The proposed System comprises three major components, namely (a) an e-Ticketing system providing digitalised frontend support for the enforcement process; (b) a centralised internal platform processing all traffic enforcement related information and enquiries/applications; and (c) a thematic portal providing one-stop service for members of the public. Details of each of the components are set out below –

(a) *e-Ticketing system*

The e-ticketing system mainly digitalises the existing enforcement processes, including the collection of details and evidence of traffic contraventions, data processing and storage, as well as issuance of e-FPNs to traffic offenders and submission of “Traffic Summons Application Forms” to the Judiciary. With the e-Ticketing application running on mobile devices, frontline law enforcement officers can extract the information of the drivers and/or vehicles through scanning the QR codes on the driving licences of the drivers who committed traffic offences and/or vehicle licences of the vehicles concerned, and auto-fill in the location information retrieved from the global positioning system. Frontline law enforcement officers can also utilise the mobile devices to take photographs or videos to record the details of contravention as evidence. All of the aforesaid data will be uploaded to the centralised internal platform in real-time using mobile 4G/5G connection. The e-FPNs may also be issued to the vehicle owners or drivers concerned via email or Short Message Service (SMS) on mobile phones<sup>6</sup>.

(b) *Centralised internal platform*

A centralised internal platform will be set up for processing all traffic enforcement related information and enquiries. Information and data coming from various traffic enforcement systems and devices such as Red Light Cameras, Speed Enforcement Cameras and the aforementioned mobile devices to be used by frontline law enforcement officers, etc. will be uploaded to the platform. At present, the Police has to manually log in to different systems such as TD’s Vehicle and Driver Licensing Integrated Data System (VALID) to obtain relevant information of the vehicle and driver involved. With the centralised internal platform interfacing with different systems, information of the vehicle, vehicle owner and driver, etc.

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<sup>6</sup> This function can only be put in place upon the full implementation of the proposed System after the passage of relevant legislative amendments.

involving in the traffic offence will be drawn automatically from different systems for preparing e-FPNs and “Traffic Summons Application Forms” to the Judiciary. Apart from automating the process, this centralised platform can also better integrate traffic enforcement data and analyse them to facilitate traffic management work of the Police.

(c) *External citizen-centric thematic portal*

The citizen-centric thematic portal will provide a convenient platform for vehicle owners and drivers to handle traffic contravention related matters online. Members of the public can, upon authenticating his/her identity via the Government’s “iAM Smart” mobile application, access the thematic portal to view his/her e-FPNs as well as apply to the Police and view relevant offence photographs and/or videos, make online payment for the penalty or other application fees via electronic means (such as PPS and Faster Payment System), raise enquiries and dispute liabilities on prosecution, apply for “Traffic Conviction Records<sup>7</sup>” and receive/return the “Notice requiring Identification of Driver<sup>8</sup>” through the thematic portal. Meanwhile, the Police and TD are proactively exploring the details of providing Driving-offence Points (DOP) in the thematic portal for reference by the public<sup>9</sup>.

## Expected Benefits

9. The proposed Traffic e-Enforcement System will improve the current workflow and bring more convenient public services to citizens. This is in line with the policy to develop Hong Kong into a smart city. The expected benefits to be brought by the proposed System are explained as follows –

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<sup>7</sup> The information of the Traffic Conviction Records includes (1) previous conviction record under Cap. 374 in the past ten years; (2) payment record under Cap. 240 in the past five years; and (3) record of driving-offence points under Section 3(2) of the Road Traffic (Driving-offence Points) Ordinance (Cap. 375) in the past five years. At present, members of public have to submit application for this Record in person, by post, by fax or by email. The Traffic Conviction Record will only be issued after confirming that the application fee has been received and all the outstanding traffic contravention related court orders have been settled by the applicant.

<sup>8</sup> At present, the Police issues the Notice requiring Identification of Driver by post to the registered owner of the vehicle involving in a traffic offence to identify the driver concerned. The registered owner has to complete, sign and return the said Notice to the Police in person or by post within 21 days of the date of the Notice.

<sup>9</sup> Owing to the lead time required for certain data entry procedures, the DOP records to be provided through the thematic portal will not be real-time and are for reference only. If the public wishes to obtain a certificate as a proof of their DOP records, they should apply for “Traffic Conviction Records” through the thematic portal instead.

(a) *Enhance traffic enforcement accuracy and efficiency*

Experience of the Pilot Scheme shows that the proposed Traffic e-Enforcement System can enhance the accuracy and efficiency of traffic enforcement. As mentioned in paragraphs 4, 5 and 7 above, the time required for issuing an e-FPN under the Pilot Scheme can be shortened substantially and the number of FPNs withdrawn due to human errors can also be reduced significantly. Since the offence details, photographs and/or videos are instantly captured at the scene with the mobile devices and automatically uploaded to the proposed System, accuracy and reliability of the evidence can be enhanced, thereby minimising complaints and disputes on traffic enforcement.

(b) *Enhance traffic management capacity*

With the enhanced operational efficiency in traffic enforcement provided by the proposed System, it is estimated that about 15 minutes can be saved in general for issuing each e-FPN as compared with paper-based FPN. Frontline law enforcement officers can therefore be redeployed to other duties, including other traffic management duties (such as handling traffic complaints, carrying out traffic accident investigations, implementing traffic management control and directing traffic during peak hours on-site), as well as other policing duties such as street patrol. Taking into account the number of e-FPNs issued each year, some 4 300 man-months can be saved annually and redeployed to other traffic management duties.

(c) *Enhance road safety and alleviate traffic congestion*

Taking more efficient and precise traffic enforcement actions may more effectively deter vehicle owners and drivers from committing traffic offences. In the long run, it may foster better driving attitude amongst drivers, which is conducive to reducing traffic accidents and illegal parking, thereby alleviating traffic congestion.

(d) *Provide convenient and transparent public services*

The proposed citizen-centric Traffic e-Enforcement thematic portal will provide a convenient online platform for vehicle owners and drivers to view their e-FPNs and handle related matters online, such as making online payment of penalty and making application to view relevant photographs and videos, etc.

In addition, as traffic offence information and data collected would be automatically uploaded to the proposed System in real time, this will enable the retrieval of relevant electronic records immediately for responding to public enquiries.

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*(e) Promote green traffic enforcement*

By issuing e-FPNs to traffic offenders and submitting summons applications to the Judiciary through electronic means, paperless traffic enforcement can be achieved in support of environmental protection. Moreover, there will no longer be a need to use valuable office space for storage of the paper-based FPNs and “Traffic Summons Application Forms”.

**LEGISLATIVE AMENDMENTS**

10. To provide legal basis for implementing the functions and features of the proposed Traffic e-Enforcement System, the Government will make amendments to Cap. 237, the Fixed Penalty (Traffic Contraventions) Regulations (Cap. 237A), Cap. 240, the Fixed Penalty (Criminal Proceedings) Regulations (Cap. 240A), Cap. 374, the Road Traffic (Driving Licences) Regulations (Cap. 374B) and the Road Traffic (Registration and Licensing of Vehicles) Regulations (Cap. 374E). We plan to submit the relevant legislative proposals to the Legislative Council (LegCo) in the next legislative session. As it will take time to develop the proposed Traffic e-Enforcement System, we seek funding approval in this legislative session to enable early implementation.

**FINANCIAL IMPLICATIONS****Non-recurrent Expenditure**

11. The proposal will involve an estimated non-recurrent expenditure of \$ 351,586,000 over a five-year period from 2021-22 to 2025-26, with breakdown as follows –

	2021-22	2022-23	2023-24	2024-25	2025-26	Total
	(\$'000)					
(a) Hardware	10,839	1,997	96,521	-	-	109,357
(b) Software	1,242	368	33,456	-	-	35,066
(c) Communication Network	529	4,205	18,062	3,410	-	26,206
(d) Cloud Services	-	2,405	4,811	2,405	-	9,621
(e) System Development Services	216	28,924	28,860	14,280	-	72,280
(f) Contract Staff	10,027	13,369	13,369	13,370	10,027	60,162

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	2021-22	2022-23	2023-24	2024-25	2025-26	Total
	(\$'000)					
(g) Staff Training	-	-	400	400	-	800
(h) Site Preparation	-	270	360	270	-	900
(i) Others	-	1,308	2,616	1,308	-	5,232
Sub-total	22,853	52,846	198,455	35,443	10,027	319,624
(j) Contingency (10% of items (a) to (i) above)	2,285	5,285	19,845	3,544	1,003	31,962
<b>Total</b>	<b>25,138</b>	<b>58,131</b>	<b>218,300</b>	<b>38,987</b>	<b>11,030</b>	<b>351,586</b>

12. On paragraph 11(a) above, the estimate of \$109,357,000 is for acquiring the computer hardware for the main system and backup system, including servers, storage devices, backup devices, load balancers, workstations, mobile devices and mobile printers, etc.

13. On paragraph 11(b) above, the estimate of \$35,066,000 is for acquiring related computer software, including system management, server application, database application, photographs and videos processing software, mobile device management software, etc.

14. On paragraph 11(c) above, the estimate of \$26,206,000 is for acquiring communication network, including routers, firewalls, network transceivers and subscription fees of mobile data service, etc.

15. On paragraph 11(d) above, the estimate of \$9,621,000 is for rental of the Government Cloud Infrastructure Services to set up the proposed Traffic e-Enforcement thematic portal.

16. On paragraph 11(e) above, the estimate of \$72,280,000 is for engaging service providers for the development of various components of the proposed System, including the thematic portal, backend enterprise application system and mobile application, etc. To support the interface of various external application systems with the proposed System, the estimate also covers the costs required for upgrading such systems such as TD's VALID.



17. On paragraph 11(f) above, the estimate of \$60,162,000 is for hiring contract staff to carry out project management and supervisory duties, including preparation of tender documents, supporting the development of various components of the proposed System, managing system security, liaison with project stakeholders, etc.

18. On paragraph 11(g) above, the estimate of \$800,000 is for providing relevant training to serving frontline law enforcement officers.

19. On paragraph 11(h) above, the estimate of \$900,000 is for site preparation in respect of installation of network ports, power sockets and fibre channels, etc. in relevant office areas.

20. On paragraph 11(i) above, the estimate of \$5,232,000 is for acquiring other accessories and consumables such as thermal paper and toner cartridges, etc. to support the development of the proposed System.

21. On paragraph 11(j) above, the estimate of \$31,962,000 represents a 10% contingency on the items set out in paragraph 11(a) to (i) above.

### **Other Non-recurrent Expenditure**

22. In addition, the implementation of the proposed System will require a project team for project management, tendering, system analysis and design, site preparation, quality assurance, acceptance testing, project control, management of outsourced service providers, etc. This entails a total staff cost of \$28,101,000 from 2021-22 to 2024-25, which will be absorbed by the Police's existing resources.

### **Recurrent Expenditure**

23. The proposed Traffic e-Enforcement System is expected to commission in phases starting from the first quarter of 2023. The estimated recurrent expenditure for the proposed System will be \$1,524,000 in 2022-23 and will gradually increase to \$62,463,000<sup>10</sup> per annum from 2026-27 onwards. The recurrent expenditure will mainly cover hardware and software maintenance, day-to-day support services, communication network and cloud services, consumables and other expenses. The breakdown is as follows –

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<sup>10</sup> After the full commissioning of the proposed System scheduled in January 2024, the Police will engage service providers and contract staff in phases to provide continuous system maintenance and support services. Hence, the full-year recurrent expenditure will be reflected from 2026-27 onwards.

	2022-23	2023-24	2024-25	2025-26	2026-27 onwards
	(\$'000)				
(a) Hardware and Software Maintenance	1,524	1,869	25,766	25,766	25,766
(b) Communication Network	-	-	6,100	9,509	9,509
(c) Cloud Services	-	-	2,405	4,811	4,811
(d) Support Services	-	-	-	14,280	14,280
(e) Contract Staff	-	-	-	-	5,481
(f) Consumables	-	-	2,616	2,616	2,616
<b>Total</b>	<b>1,524</b>	<b>1,869</b>	<b>36,887</b>	<b>56,982</b>	<b>62,463</b>

24. After offsetting the realisable savings of \$13,014,000 per annum as detailed in paragraph 25, the proposed System will require a net recurrent cost of \$49,449,000 per annum from 2026-27 onwards. Besides, the Police will arrange a team through internal redeployment to provide ongoing system operation support and administration. The annual staff cost involved will be \$4,106,000 per annum from 2026-27 onwards.

### Cost Savings

25. Upon the full commissioning of the proposed System, it is estimated that an annual saving of \$247,021,000 will be generated from 2024-25 onwards<sup>11</sup>, comprising –

(a) *Realisable annual savings of \$13,014,000*

This comprises the savings of about \$12,408,000 being the staff cost of the supporting clerical staff in the Central Traffic Prosecution Division who are currently responsible for handling paper-based FPNs and inputting prosecution data manually into related systems; and the savings of about \$606,000 arising from cessation of printing requirements (such as paper FPNs).

(b) *Notional annual savings of \$234,007,000*

With the improvements to be brought about by the proposed System, notional savings of about \$232,549,000 in manpower will be achieved through redeployment of the fragmented reduction in staff

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<sup>11</sup> The actual savings can only be ascertained after the passage of relevant legislative amendments and the full implementation of the proposed System, subject to further review by the Police taking into account actual operations.

efforts in various police units/offices to other traffic management duties as a result of enhanced operational efficiency of traffic enforcement and reduced demand for backend clerical support. In addition, a notional savings of about \$1,458,000 in accommodation cost will also be achieved as storage of paper-based FPNs and related paper registers will no longer be required.

Encl. 26. A cost and benefit analysis for the proposed Traffic e-Enforcement System is at Enclosure.

### IMPLEMENTATION PLAN

27. Subject to the approval of the Finance Committee, the Police will carry out tendering for the proposed System as soon as possible. It is expected that the e-ticketing system and the first phase of the thematic portal will be launched in the first quarter of 2023 to enable the public to view e-FPNs, make online payment to settle the penalty, or raise enquiries on prosecution related matters as well as dispute liabilities, etc. We target to commission the proposed System fully in the first quarter of 2024<sup>12</sup>. The implementation schedule is as follows –

	<b>Task</b>	<b>Target Completion Date</b>
(a)	Tender preparation	November 2021
(b)	Tendering, tender evaluation and award of contract	March 2022
(c)	Design of the infrastructure platform	September 2022
(d)	Rollout of the e-ticketing system and the first-phase of the thematic portal	January 2023
(e)	Delivery and installation of hardware and software, and testing of the platform	December 2023
(f)	Delivery and full commissioning of the System	January 2024
(g)	System nursing	September 2024

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<sup>12</sup> Serving of e-FPNs by electronic means (e.g. SMS and/or email) will be subject to the passage of relevant legislative amendments as set out in paragraph 10. The other main functions of the proposed System as set out in paragraph 27 do not hinge on the legislative amendments and are planned for launching in the first quarter of 2023.

**PUBLIC CONSULTATION**

28. We consulted the LegCo Panel on Transport on 20 April 2021. Members supported the submission of the proposal to the Finance Committee for funding approval.

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Transport and Housing Bureau  
Hong Kong Police Force  
June 2021

### Cost and Benefit Analysis for the Implementation of Traffic e-Enforcement System

Item	(\$'000)								
	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	Total
<b>1. Non-recurrent</b>									
Expenditure	25,138	58,131	218,300	38,987	11,030	-	-	-	351,586
Staff cost	10,152	5,983	5,983	5,983	-	-	-	-	28,101
<b>Total Non-Recurrent Cost</b>	<b>35,290</b>	<b>64,114</b>	<b>224,283</b>	<b>44,970</b>	<b>11,030</b>	-	-	-	<b>379,687</b>
<b>2. Recurrent</b>									
Expenditure	-	1,524	1,869	36,887	56,982	62,463	62,463	62,463	284,651
Staff cost	-	-	-	-	-	4,106	4,106	4,106	12,318
<b>Total Recurrent Cost</b>	<b>-</b>	<b>1,524</b>	<b>1,869</b>	<b>36,887</b>	<b>56,982</b>	<b>66,569</b>	<b>66,569</b>	<b>66,569</b>	<b>296,969</b>
<b>Total Non-recurrent and Recurrent Cost (A)</b>	<b>35,290</b>	<b>65,638</b>	<b>226,152</b>	<b>81,857</b>	<b>68,012</b>	<b>66,569</b>	<b>66,569</b>	<b>66,569</b>	<b>676,656</b>
<b>3. Savings</b>									
Realisable savings	-	-	3,254	13,014	13,014	13,014	13,014	13,014	68,324
Notional savings <sup>Note</sup>	-	-	58,502	234,007	234,007	234,007	234,007	234,007	1,228,537
<b>Total Savings (B)</b>	<b>-</b>	<b>-</b>	<b>61,756</b>	<b>247,021</b>	<b>247,021</b>	<b>247,021</b>	<b>247,021</b>	<b>247,021</b>	<b>1,296,861</b>
<b>Net Savings (C) = (B) - (A)</b>	<b>(35,290)</b>	<b>(65,638)</b>	<b>(164,396)</b>	<b>165,164</b>	<b>179,009</b>	<b>180,452</b>	<b>180,452</b>	<b>180,452</b>	<b>620,205</b>
<b>Net Cumulative Savings</b>	<b>(35,290)</b>	<b>(100,928)</b>	<b>(265,324)</b>	<b>(100,160)</b>	<b>78,849</b>	<b>259,301</b>	<b>439,753</b>	<b>620,205</b>	

<sup>Note</sup> The notional savings will be achieved mainly by the enhanced operational efficiency on traffic enforcement and reduced demand for backend clerical support.