

CHAPTER 3

**Security Bureau
Financial Services and the Treasury Bureau
Hong Kong Police Force
Electrical and Mechanical Services Department
Government Logistics Department**

**Procurement of operational equipment
by the Hong Kong Police Force**

**Audit Commission
Hong Kong
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PROCUREMENT OF OPERATIONAL EQUIPMENT BY THE HONG KONG POLICE FORCE

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PROCUREMENT OF OPERATIONAL EQUIPMENT BY THE HONG KONG POLICE FORCE

Executive Summary

1. The Hong Kong Police Force (HKPF) maintains law and order through the deployment of efficient and well-equipped uniformed police personnel throughout the land and waters of Hong Kong. As at 31 March 2018, the HKPF had 29,377 disciplined staff and 4,325 civilian staff, and the Hong Kong Auxiliary Police Force had 3,077 auxiliary police officers. The HKPF is at the forefront to protect citizens, their properties and infrastructure from harm and loss. It is vital that the HKPF is well equipped to deal with a wide range of incidents, emergencies and crime on a timely basis. In 2016-17, the HKPF incurred \$341 million under the General Revenue Account (GRA) and \$171 million under the Capital Works Reserve Fund (CWRP) on the procurement of operational equipment including information and communications technology (ICT) systems, vehicles, vessels and other operational equipment (such as uniform, protective equipment, and arms and ammunition). The HKPF's procurement activities are governed by the Stores and Procurement Regulations (SPRs) and relevant Financial Circulars. The Audit Commission (Audit) has recently conducted a review to examine the HKPF's work on the procurement of operational equipment with a view to identifying areas for improvement.

Implementation of major information and communications technology projects

2. The HKPF's ICT systems are vital to its routine operation for delivering police services to the public. In November 1992, the then Secretary for the Treasury undertook to provide an annual report to the Finance Committee (FC) of the Legislative Council on the progress of implementation of all major computer projects, including the actual expenditure and any revision to original scheduled implementation date. Based on the annual reports on the implementation of major ICT projects submitted by the Office of the Government Chief Information Officer (OGCIO) to the FC, Audit selected three HKPF's ICT projects with aggregate funding of \$1,400 million for examination: (a) implementation of the Third Generation

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Command and Control Communications System (CC3 system) with approved funding of \$948 million; (b) enhancement of the information technology infrastructure by using virtual workstation (VW) with approved funding of \$40.72 million; and (c) development of the Second Generation of Communal Information System (CIS2) with approved funding of \$411.27 million. These three ICT projects had significant extension and enhancement work done after system roll-out or long delays in implementation (paras. 2.1 and 2.3).

3. ***Implementation of the CC3 system.*** In June 2001, the HKPF obtained the FC's funding approval of \$948 million under Head 708 of the CWRP to replace the Second Generation Command and Control Communications System which would reach the end of its useful life in 2004. The CC3 system included: (i) an integrated communications system (ICS) for providing comprehensive radio coverage; (ii) a computer-assisted command and control system (CACCS3) for supporting resource deployment; and (iii) an emergency telephone system (ETS) for answering and responding to 999 emergency calls. In 2003, a contract (Contract A) for implementing the CC3 system (excluding CACCS3) and another contract (Contract B) for implementing the CACCS3 were awarded at a total sum of \$370.3 million. The CC3 system commenced operation by phases between December 2004 and March 2006. However, from September 2004 to July 2015, the CC3 Executive Committee (an ICT project steering committee of the HKPF) approved 43 items of extension and enhancement work for the CC3 system, including 33 items approved after completion of the system roll-out in March 2006. Hence, upon completion of the extension and enhancement work by 2016, the HKPF spent a total sum of \$806.1 million on the CC3 project, comprising \$435 million incurred under Contracts A and B, \$322 million on the extension and enhancement work and \$49.1 million for employing contract staff and site preparation (paras. 2.4 to 2.7). Audit examination has revealed the following areas for improvement:

- (a) ***Need to better monitor unspent funds resulting from lower-than-estimated tender prices for capital non-works projects.*** According to Financial and Accounting Regulation 320, where Controlling Officers have reason to believe that funds surplus to requirements exist under a subhead, they shall immediately inform the Financial Services and the Treasury Bureau (FSTB) so that the excess may be reserved. Due to the tender prices of Contracts A and B being significantly lower than the pre-tender estimates of \$849.7 million, there was an unspent balance of \$414.7 million when Contracts A and B were finalised in 2009. According to the HKPF, it had not reported the unspent balance to the FSTB in 2009 as there were still

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activities to be undertaken within the CC3 project scope and these activities had been reported as part of the CC3 project to the FC and the FSTB through the annual reports (see para. 2 above). However, for government works projects funded under the CWRP, there are other monitoring requirements, e.g. the FSTB may impose an administrative cap on the project expenditure when there is lower-than-estimated tender price. To uphold financial discipline, there is a need to consider applying similar requirements to capital non-works projects such as the CC3 system (paras. 2.8 and 2.9);

- (b) ***Need to strengthen control over the use of unspent funds in CWRP projects.*** After the system roll-out of the CC3 system in March 2006, the Executive Committee approved 33 items of extension and enhancement work, with a total expenditure of \$285.64 million charged to the CC3 project subhead. According to the HKPF, with an aim to provide a more comprehensive radio coverage and ensure stability and reliability of the CC3 system, these work items were approved on the premises that they were within the project scope. However, Audit notes that: (i) the FC's approval of \$948 million was for the replacement of the Second Generation Command and Control Communications System by the CC3 system and was not a blanket approval for extension and enhancement work for some ten years after the CC3 system roll-out in 2006. For example, a total of \$107.11 million for three items of enhancement work was approved by the Executive Committee in July 2014, i.e. (1) enhancement of ETS call processing and distribution sub-systems at \$25.61 million; (2) ICS enhancement at \$60 million; and (3) enhancement of CACCS3 servers, workstations and notebooks at \$21.5 million; and (ii) Financial Circular No. 1/2004 stipulates that Controlling Officers should ensure that expenditure is only incurred within the limits and scope authorised, and should consult the FSTB where in doubt. In Audit's view, the HKPF should have consulted the FSTB on the propriety of charging the expenditure of the extension and enhancement work implemented after system roll-out into the CC3 project vote (paras. 2.10 to 2.12); and
- (c) ***Need to improve project specification.*** Audit examination of two work items for the extension of the CC3 radio coverage to the Hong Kong International Airport and 59 other indoor locations approved by the Executive Committee in June 2008 revealed the following lessons to be learned in project specification:

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- (i) according to the 2001 FC funding paper, the CC3 system would provide comprehensive radio coverage and an amount of \$105 million was included for the procurement of radio equipment to be installed in 120 outdoor locations. According to the HKPF, since there were technical uncertainties (e.g. feasibility of solutions, and cost and time required to negotiate with relevant parties for installing radio equipment within their premises), CC3 radio coverage for some indoor locations (including the Airport) was not included in the development of the CC3 system from the outset. Indoor radio coverage for the Airport was only implemented as extension work at a cost of \$38.11 million by 2015. As the HKPF had planned to complete the CC3 system development work first and then extend the CC3 radio coverage to the Airport and other indoor locations with technical uncertainties, it should have set out its plan in the FC funding paper (Case 1 in para. 2.14); and
- (ii) while 21 indoor locations were specified as mandatory requirements for the provision of radio coverage in Contract A, other uncertain indoor locations were only included as desirable requirements without specifying the number of such locations to be covered. In the event, because of the contractor's objection to its liability for the cost of the significant number of such unspecified locations, radio coverage extension work had to be carried out under separate contracts. To prevent recurrence of similar problems, the HKPF needs to improve contract specifications for similar ICT projects, such as specifying the number of locations to be covered with details of the locations to be provided to the contractor at a later stage (Case 2 in para. 2.14).

4. ***Enhancement of the information technology infrastructure by using VW (initial implementation).*** To enhance the accessibility, mobility and security of information technology support for police officers, in May 2010, the HKPF obtained the FC's funding approval of \$40.72 million under the CWRP to introduce VWs in the Kowloon West Region before rolling out of the VW project to cover all disciplined police officers. While the VW project was completed within budget at a cost of \$40.33 million, the system only came into operation in June 2017, i.e. 60 months later than that scheduled in the FC funding paper (paras. 2.15 and 2.17). Audit examination has revealed the following areas for improvement:

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- (a) ***Delay in project implementation.*** The actual time taken for tender preparation and contract work of the VW project was 47 months longer than scheduled. The HKPF needs to make realistic assessment of project implementation schedule for procurement involving new technology. Extra time of 13 months was spent on re-tendering as no conforming offer was received in the first tender in 2012. According to potential suppliers' feedback, the first tender's requirements on supplier's experience and skill were too restrictive. The HKPF needs to remind procuring staff to guard against over-prescribing requirements in future procurement (paras. 2.17 to 2.20); and
- (b) ***Need to provide comprehensive and accurate project implementation information in Post Implementation Departmental Return (PIDR).*** OGCI reports in its Controlling Officer's Report the government-wide results of completed information technology projects based on PIDRs provided by bureaux and departments. The purpose of the PIDR is to evaluate the achievement of information technology projects to ensure that the Government's investment in the projects has attained the intended objectives in a timely and cost-effective way. According to the PIDR submitted by the HKPF in June 2018, the VW project had delivered all the planned functions and benefits. However, Audit noted that some implementation issues which could affect the delivery of planned functions and benefits of the VW project had not been fully reflected in the PIDR: (i) about 1,500 VWs instead of the planned 1,800 VWs (or 17% fewer) were deployed to the Kowloon West Region; and (ii) of the expected notional annual cost savings of \$20.7 million, \$18.4 million was derived from a 1% efficiency gain (an estimated saving of 516 man-months) for providing 985 VWs to 4,300 junior police officers. Due to the reduction of some 200 VWs for these officers, the notional annual saving was reduced by 62 man-months (or 12% of the estimated 516 man-months) (paras. 2.25 and 2.26).
5. ***Development of the CIS2.*** In May 2010, the HKPF obtained the FC's funding approval of \$411.27 million under the CWRP to replace its existing Communal Information System to capture, maintain and process reported cases, assist in prosecution, generate management reports for crime prevention and support traffic operation. After award of a contract at \$343 million in June 2012 for the supply of the CIS2 under four phases, there were eight revisions of the implementation plan with the scheduled completion date extended by 31 months to August 2019.

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According to the HKPF, it had underestimated the complexity of the CIS2 and more time was required for system analysis and development. The delay had deferred the realisation of intended benefits (including annual cost savings of about \$93 million). Audit has found that besides closely monitoring the contract progress to ensure that the latest revised implementation date of August 2019 is attained, the HKPF also needs to improve its contract management (paras. 2.27 to 2.31):

- (a) ***Need to closely monitor contract deliverables.*** While the CIS2 project initiation document stated that the Executive Committee of the HKPF would hold meetings to endorse all project deliverables and approve the End Stage Assessments before issuing an acceptance certificate and arranging milestone payment to the contractor, the Project Team only informed the Executive Committee by email in May 2018 of the completion of Phase 1 in December 2017 before issuing an acceptance certificate for a milestone payment of 40% of the contract price of \$343 million (para. 2.33); and
- (b) ***Need to obtain prior approval of contract variations.*** Of the 8 contract variations for extending different phases of system implementation work, 6 were approved by the Financial Controller of the HKPF after the original end date of the respective milestones. There is a need to remind relevant officers to obtain prior approval for contract variations (para. 2.34).

Procurement of police vehicles

6. Government vehicles used primarily for the carriage of passengers and/or goods are classified as general-purpose vehicles while those mounted with ancillary equipment for performing specific functions are classified as specialised vehicles. As at 1 April 2018, the HKPF had a fleet of 2,394 vehicles comprising 1,249 general-purpose vehicles (such as medium saloon cars and small motorcycles) and 1,145 specialised vehicles (such as large vans and armoured personnel carriers). The Government Logistics Department (GLD) has overall responsibility for the procurement of general-purpose vehicles for all user bureaux/departments and spent \$232.5 million on procuring general-purpose vehicles for the HKPF from 2012-13 to 2016-17. Over the same period, the HKPF, with the assistance of the Electrical and Mechanical Services Trading Fund (EMSTF) which is responsible for providing electrical and mechanical services to government bureaux/departments, spent \$497 million on procuring police specialised vehicles (paras. 1.9(b), 3.1 and 3.2).

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Replacement of general-purpose vehicles by electric vehicles

7. In line with the Government's policy to reduce air pollutant emissions through the use of electric vehicles, the GLD replaced 131 general-purpose vehicles of the HKPF by 69 electric saloon cars and 62 electric motorcycles which were procured under four contracts with contract sums aggregating \$52.84 million from 2011 to 2014. From September 2014 to June 2018, the HKPF conducted three assessments of the electric vehicles, the results of which indicated a number of operational issues such as long charging time, lower average availability and lower maximum driving range. Since the third quarter of 2015, the EMSTF had found that some electric saloon cars had deteriorating battery performance and requested the contractor to fix the battery problem according to the contract terms. Up to May 2018, of the 54 electric saloon cars that required battery replacement, only 30 (56%) had their batteries replaced. The remaining 24 (44%) were still pending battery replacement. The long waiting time of the 54 electric saloon cars for battery replacement had affected the HKPF's deployment of vehicles (paras. 3.3, 3.4, 3.6 to 3.8, 3.10 and 3.11). Audit has found areas for improvement in the GLD's contract administration as follows:

- (a) ***Need to step up monitoring of contractors' performance of their contractual duties.*** While the contractor had not followed the contract requirement in providing vehicle availability reports, the GLD did not follow up the issue. According to the EMSTF's records, 16 electric saloon cars had failed to meet the 95% availability stipulated by the contract due to warranty repair (including battery replacement), indicating that the GLD could have claimed warranty extension. However, in the absence of any warranty extension claimed, the warranties of both the vehicles and the batteries had expired from August 2015 to September 2018 while 24 electric saloon cars were still pending battery replacement as at May 2018. In Audit's view, in light of the expiry of the warranty, the GLD needs to take appropriate action to protect the Government's interest and step up monitoring of contractors' due performance of their contractual duties (para. 3.11(a));
- (b) ***Need to improve the contract provisions for warranty repair.*** According to the contract provisions, during the warranty period, if any defect is not made good within 72 hours after the contractor has been notified of the problem, the Government may proceed to rectify the defects and recover all costs incurred from the contractor. However, these contract provisions cannot be invoked for the battery replacement of the electric saloon cars

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which could only be provided by the manufacturer or its authorised dealer. The GLD needs to review and improve such contract provisions for better protecting the Government's interest in future (para. 3.11(b)); and

- (c) ***Need to draw on experience gained from the use of electric vehicles in future procurement.*** According to the three operational assessments conducted from September 2014 to June 2018, the HKPF found that there were various operational problems in using the electric vehicles. For example, due to the long charging time of 9 to 12 hours for an electric saloon car, the average vehicle availability was 65% (i.e. only for two of three shifts in a day). The GLD needs to critically examine the availability of suitable environmental-friendly vehicles in the market that can fully meet the HKPF's operational needs when these electric vehicles are due for replacement (paras. 3.7 and 3.12).

Procurement of specialised vehicles

8. ***Procurement contract of 129 large vans.*** In March 2016, the GLD, as the procurement agent, awarded a contract at a cost of \$69.3 million for the supply of 129 large police vans to be delivered by two consignments, i.e. 66 and 63 by June and August 2017 respectively. However, on account of late vehicle delivery and defects identified in the delivered vans, the EMSTF issued two warning letters to the contractor in September and November 2017. Up to 18 September 2018, 124 (96% of 129) large vans had been delivered. The remaining 5 (4%) large vans were rejected by the EMSTF because of quality issues. The EMSTF and GLD need to take effective measures to ensure that the contractor completes the outstanding work without further delay and draw lessons from this case (paras. 3.17, 3.18 and 3.20):

- (a) ***Need to enhance site acceptance tests of specialised vehicles.*** There were reported cases of defective retractable side steps of the mid-loading doors and cracks on front bumpers shortly after some vans had been put into use (e.g. 39 days for the first repair case of defective retractable side step and 8 months for the first repair case of the bumper crack). After re-inspection, 124 delivered vans were found requiring retrofit work. The EMSTF needs to enhance site acceptance test of similar installations of delivered vehicles (para. 3.20(a)); and
- (b) ***Need to strengthen payment control.*** According to the payment terms of the contract, 30% of the price of an order of vehicles shall be payable upon

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delivery of chassis and the remaining 70% after the contractor has delivered the vehicles and provided all necessary documents and training courses (three on operation and another three on maintenance). However, the EMSTF had made payments totalling \$40 million for 81 delivered vans up to May 2018 when the training requirements were only partially fulfilled, i.e. three training courses on operation but only one on maintenance had been provided. The EMSTF needs to strengthen the payment control (para. 3.20(b)).

9. *Need to return unspent balance of completed procurement contracts.* Police specialised vehicles with unit cost within \$10 million are funded by a capital account block vote subhead 695 of the GRA created in January 2010. In accordance with an agreed arrangement made between the HKPF and the EMSTF in December 2010, a total of \$723.1 million under subhead 695 was transferred to the EMSTF's deposit account from 2010-11 to 2017-18 for the procurement of police specialised vehicles. While the EMSTF informed the HKPF in 2016 and 2018 that there was unspent balance of completed procurement contracts, the HKPF decided to keep the unspent balance in the deposit account for meeting future funding shortage in vehicle procurement. Upon Audit's enquiry in August 2018, the FSTB confirmed that the unspent balance of completed procurement contracts under subhead 695 should be returned to the Government in accordance with the Financial and Accounting Regulation requirement. Accordingly, the HKPF returned the unspent balance of \$29.7 million to the Government in early October 2018. In Audit's view, the HKPF needs to ensure compliance with the Financial and Accounting Regulation requirement in future (paras. 3.21 to 3.23).

Procurement of other operational equipment

10. Audit examined 10 procurement exercises of other operational equipment by tenders from 2012-13 to 2016-17 and found areas for improvement in applying the procurement policy and principles laid down in the SPRs in four cases (see paras. 11 to 14 below) (para. 4.3).

11. *Procurement of vehicle-mounted electronic counter measures system (ECMS).* In 2006-07, the HKPF obtained funding of \$6.2 million for replacing the aged ECMS which could not be upgraded to meet modern threats. In the event, the new ECMS was procured at a sum of about \$9.32 million in 2014 after conducting

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four tender exercises. According to the HKPF, during the initial stage of the project, the ECMS was a highly sensitive equipment and there were difficulties in obtaining export licence/permission for sale. However, Audit noted that there were areas for improvement in conducting the tender exercises (paras. 4.4, 4.5, 4.10 and 4.11):

- (a) ***Need to use open tender as far as practicable.*** For the first and second tender exercises in 2008 and 2010, the HKPF used restricted tendering due to concern over disclosure of sensitive information in open tender. It was not until the cancellation of the second tender exercise in 2011 that the HKPF re-assessed the open tendering option which turned out to be feasible by redrafting the tender specifications. The HKPF needs to use open tender which could help reach out to more potential suppliers when the security concern can be addressed (para. 4.11(a));
 - (b) ***Need to update pre-tender estimate.*** The second tender exercise was cancelled in 2011 because the price of the conforming tender was considered excessive, far exceeding the approved funding of \$6.2 million. As the approved funding was based on the pre-tender estimate prepared in 2004-05, the HKPF should have ensured that the pre-tender estimate was up-to-date and adequate funding provision was available before launching the second tender (paras. 4.7 and 4.11(b)); and
 - (c) ***Need to adopt a more flexible tender approach for less essential requirements.*** After three unsuccessful tender exercises, the HKPF further reviewed the essential requirements. With relaxation of the less essential requirements and the availability of more suppliers in the market due to technological advances, a suitable tenderer was selected in the fourth tender exercise. There is a need to adopt a more flexible tender approach for the less essential requirements (paras. 4.10 and 4.11(c)).
12. ***Procurement of tactical suits.*** After market research and trials in 2016, the Operations Wing of the HKPF identified a new tactical suit with Material X (a material used for manufacturing personal protective equipment) as a suitable replacement for the old one which was introduced in the 1990s. In April 2017, after an open tender exercise for the supply of tactical suits, the Force Tender Committee of the HKPF approved the acceptance of the only conforming tender at a contract sum of \$4.64 million. The Committee also advised the Operations Wing that: (i) a more thorough market research could have been conducted to obtain not just catalogues and general specifications but also prices from the suppliers; and (ii) in order to obtain

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competitive tenders, the technical specifications should be critically reviewed (paras. 4.12 to 4.15 and 4.17). Audit noted that there were other areas for improvement in the tender arrangements:

- (a) ***Need to seek early clarification with users on tender specifications.*** At the time of preparing the tender documents in January 2017, the HKPF's Stores Management Division (SMD) did not raise any question on the tender specifications provided by the Operations Wing relating to their compliance with the SPRs. However, in late March 2017 (after the close of tender), an SMD member of the Force Tender Committee asked the Operations Wing to confirm if the tender specifications were prepared in accordance with the SPRs. The SMD needs to seek early clarifications with users before invitation of tenders (para. 4.19(a)); and
- (b) ***Need to prepare strong justifications for using material specifications in a timely manner.*** According to the SPRs, the use of material specifications might limit innovative solutions or new technologies or products which tenderers might be able to offer, and restrict competition. In preparing tender specifications, departments should use functional and performance specifications, supplementing them by a material or technical specification only if absolutely necessary. While the Operations Wing had conducted its own research to show that Material X was the most suitable material for the required tactical suits, it was not until August 2017 (after award of the contract) that a local university was commissioned to confirm the material suitability. There is a need to remind procuring staff to prepare strong justifications for using material specifications in a timely manner (para. 4.19(b)).

13. ***Procurement of combat boots and repair service.*** In 2012 and 2013, the SMD received staff complaints that rubber soles of some combat boots peeled off easily. After investigation, it was found that the adhesive of the defective boots manufactured in 2009 and 2010 had aged because of long time storage. In 2014 and 2015, the HKPF awarded two contracts to the supplier for repairing 3,923 pairs of combat boots at a total cost of \$2 million. However, in 2016, the detachment of soles still occurred in 64 pairs of the 2014 repaired combat boots. After negotiation, the HKPF accepted the supplier's offer of replacing 300 of 599 pairs of the 2014 repaired boots in stock with new ones. To address the occupational and safety concern of police officers, the HKPF disposed of the remaining 299 pairs of repaired boots in

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August 2017 (paras. 4.21 to 4.25). In Audit's view, the HKPF needs to take measures to prevent recurrence of similar problems, including the following:

- (a) ***Need to improve the contract provision.*** The HKPF needs to improve the preparation of contract documents to ensure that all essential requirements (such as the required quality of the repair service in this case) are properly incorporated in future. There is also a need to include key provisions to protect the Government's interest (such as those requiring a contractor to indemnify the Government against any injury to any government employees arising out of the negligence of the contractor) (para. 4.26(a)); and
- (b) ***Need to improve stock management to prevent prolonged storage.*** From 2008 to 2012, the HKPF conducted 5 procurement exercises for the supply of a total of 16,960 pairs of new boots. According to the HKPF's records, 924 pairs of boots of the last procurement exercise had been issued to police officers while 3,923 pairs of boots purchased in the preceding 4 procurement exercises were still in stock as at March 2014, suggesting that the first-in-first-out method for managing stock had not been adopted to prevent prolonged storage of the boots which had a shelf life of 3 years after delivery date (para. 4.26(b)).

14. ***Procurement of body-worn video cameras (BWVCs).*** To facilitate frontline police officers in collecting evidence and handling confrontation, the HKPF introduced BWVCs in 2013. After conducting field trials, the HKPF purchased 1,336 BWVCs at a total cost of \$4.81 million by 4 batches through an open tender exercise in 2015, a contract variation in 2016 and two quotations in 2016 and 2017. In approving the award of contract for the supply of 550 BWVCs in March 2016, the Force Tender Committee advised the Support Wing to: (i) exercise due care in conducting completeness check to identify any irregularities before proceeding further with tender evaluation in future; and (ii) consider the merit of using test certificates to save time and efforts in conducting tenderers' demonstration of their products' compliance with technical requirements. Audit also noted that while the procurement of BWVCs by contract variation and the first quotation was to meet urgent operational needs and after a public order event, the second quotation was to meet the operational need arising from the Anniversary of the establishment of the Hong Kong Special Administrative Region which is an annual event. The procurement requirement under the second quotation in March 2017 could have been foreseen and consolidated with the first one in December 2016 to achieve better economy of scale (paras. 4.27, 4.28, 4.30 to 4.32 and 4.34). In light of this finding, Audit further examined 190 purchases

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by quotations from 2015-16 to 2017-18 and found that there were areas for improvement as follows:

- (a) ***Need to make greater efforts to meet the SPR 246 requirement.*** Of the 190 purchases, 33 (17%) were related to repeated purchases of 13 items within 12 months, each with cumulative value exceeding the quotation limit of \$1.43 million, contrary to the SPR 246 requirement. There were documented reasons for not following the requirement for only 6 of the 13 items. The HKPF needs to make greater efforts to meet the SPR 246 requirement, e.g. using bulk purchase by tender for the regularly required items (para. 4.35(a) and Appendix G); and
- (b) ***Need to consolidate procurement requirements to achieve better economy of scale.*** Another 47 (25%) of the 190 purchases were related to repeated purchases of 19 items of same or similar nature though without breach of the SPR 246 requirement. While there were records to show that the repeated purchases for 14 items were occasioned by urgent operational needs, there appears to be scope for bundling the respective repeated purchases of the remaining 5 items to achieve better economy of scale (para. 4.35(b)).

Audit recommendations

15. **Audit recommendations are made in the respective sections of this Audit Report. Only the key ones are highlighted in this Executive Summary. Audit has *recommended* that:**

- (a) **the Commissioner of Police should:**
 - (i) **regularly review the financial position of ICT projects and report any surplus funds under relevant expenditure subheads at an earlier stage to the FSTB (para. 2.35(a));**
 - (ii) **provide sufficient information on the implementation of ICT projects in FC funding papers and improve the contract specifications on desirable requirement in ICT contracts (para. 2.35(b) and (c));**

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- (iii) **provide comprehensive and accurate project implementation information in PIDRs and remind the Executive Committee of an ICT project to closely monitor contract deliverables (para. 2.35(g) and (h));**
 - (iv) **ensure compliance with the Financial and Accounting Regulation requirement in future and return any unspent balance of completed specialised vehicles procurement contracts funded under subhead 695 to the Government (para. 3.25(b));**
 - (v) **use open tender for procurement as far as practicable and adopt a more flexible tender approach for less essential requirements (para. 4.36(a) and (c));**
 - (vi) **remind procuring staff to prepare strong justifications for using material specifications in a timely manner (para. 4.36(e));**
 - (vii) **improve stock management to prevent prolonged storage of goods taking into account their shelf lives (para. 4.36(g)); and**
 - (viii) **make greater efforts to meet the SPR 246 requirement and arrange purchase in bulk as far as practicable to achieve better economy of scale (para. 4.36(h) and (i));**
- (b) **the Secretary for Financial Services and the Treasury should:**
- (i) **consider the need for applying similar administrative cap/reporting requirements adopted for works projects to non-works projects under the CWRF for better monitoring of the surplus funds resulting from lower-than-estimated tender prices (para. 2.36(a)); and**
 - (ii) **introduce additional measures to strengthen the control over the use of funds resulting from lower-than-estimated tender prices in CWRF projects once surplus is identified (para. 2.36(b));**

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- (c) **the Director of Government Logistics should:**
 - (i) **urge the contractor concerned to expedite action on completing the outstanding battery replacement work for the electric saloon cars of the HKPF and step up monitoring of contractors' due performance of their contractual duties in future (para. 3.13(a) and (c)); and**
 - (ii) **critically examine the availability of suitable environmental-friendly vehicles in the market that can fully meet the HKPF's operational needs (para. 3.13(e)); and**
- (d) **the Director of Electrical and Mechanical Services should take effective measures to ensure that the contractor for the supply of large police vans completes the outstanding work without further delay and enhance site acceptance tests of delivered specialised vehicles (para. 3.24(a) and (b)).**

Response from the Government

16. The Government agrees with the audit recommendations.

PART 1: INTRODUCTION

1.1 This PART describes the background to the audit and outlines the audit objectives and scope.

Background

1.2 The Hong Kong Police Force (HKPF) operates within the traditional constabulary concept of preserving life and property, preventing and detecting crime and keeping the peace, with a strong emphasis on enlisting community support. According to its Controlling Officer's Reports, the HKPF has the following four programmes contributing to the policy area of Internal Security under the purview of the Security Bureau:

- (a) *Maintenance of law and order in the community.* The aim is to maintain law and order through the deployment of efficient and well-equipped uniformed police personnel throughout the land and waters of Hong Kong;
- (b) *Prevention and detection of crime.* The aim is to prevent and detect crime which is a force-wide priority with various crime units under a unified police command;
- (c) *Road safety.* The aim is to enhance road safety by reducing traffic accidents and maintaining a smooth and safe traffic flow; and
- (d) *Operations.* The aims are to prevent and detect illegal immigration and smuggling, ensure readiness to deal with major disasters, civil disturbances and acts of terrorism, maintain internal security of the territory, provide specialist reinforcement to other programmes, and manage major security and crowd management events.

1.3 The HKPF is commanded by the Commissioner of Police who is assisted by two Deputy Commissioners. Its Headquarters is organised into five Departments: (a) Operations; (b) Crime and Security; (c) Personnel and Training; (d) Management Services; and (e) Finance, Administration and Planning. For day-to-day policing, the

Introduction

HKPF is organised into five Land Regions (Note 1) and one Marine Region. An extract of the organisation chart of the HKPF is at Appendix A.

1.4 The HKPF maintains law and order through the deployment of efficient and well-equipped uniformed police personnel throughout the land and waters of Hong Kong. As at 31 March 2018, the HKPF had a strength of 33,702 staff, comprising 29,377 (87%) disciplined staff and 4,325 (13%) civilian staff. In addition, the Hong Kong Auxiliary Police Force had a strength of 3,077 auxiliary police officers. The uniform and equipment of regular and auxiliary police officers are generally the same.

1.5 ***Performance targets.*** The HKPF strives to respond to all 999 emergency calls within the performance pledge of 9 minutes on Hong Kong Island and Kowloon, and within 15 minutes in the New Territories. In 2017, the HKPF answered 1.05 million 999 calls, of which 86,435 (8.2%) were emergency cases requiring police assistance. The attainment of the HKPF's performance targets on responding to emergency calls as reported in its Controlling Officer's Reports for 2013 to 2017 is shown in Table 1.

Note 1: *The five Land Regions are Hong Kong Island, Kowloon East, Kowloon West, New Territories North and New Territories South.*

Table 1

**Key performance targets
(2013 to 2017)**

Key performance target	Target	2013	2014	2015	2016	2017
		Actual				
Responding to emergency calls on Hong Kong Island and Kowloon within 9 minutes (%)	100 %	98.2 %	98.0 %	98.8 %	99.0 %	98.5 %
Responding to emergency calls in the New Territories within 15 minutes (%)	100 %	99.8 %	99.7 %	99.7 %	99.7 %	99.7 %

Source: HKPF records

Remarks: The response time is measured from the receipt of a report by the Regional Command and Control Centre 999 console until arrival of police officers at the scene.

Police operational equipment

1.6 The HKPF is at the forefront to protect citizens, their properties and infrastructure from harm and loss. It is vital that the HKPF is well equipped to deal with a wide range of incidents, emergencies and crime on a timely basis. Besides uniforms and accoutrements, the HKPF provides a wide range of protective equipment for its frontline staff such as helmets, bullet resistant vests, shields and batons. Other types of operational equipment deployed by the HKPF include arms and ammunition, special equipment for particular user formations, and major systems and capital equipment, such as vehicles, vessels and information and communications technology (ICT) systems (Note 2).

Note 2: *According to the Office of the Government Chief Information Officer, ICT systems are classified as either administrative or non-administrative. Broadly speaking, administrative computer systems are used for the collection, processing, utilisation, storage and distribution of information in order to provide decision support to management and to assist in performing the administrative and operational duties of departments. Non-administrative computer systems support the performance of tasks by the professional, technical and educational disciplines.*

Introduction

1.7 **Procurement expenditure.** In 2016-17, the HKPF incurred \$341 million under the General Revenue Account (GRA) and \$171 million under the Capital Works Reserve Fund (CWRF) on the procurement of operational equipment. Table 2 shows the procurement expenditure in the past five financial years.

Table 2

**Expenditure on procurement of police operational equipment
(2012-13 to 2016-17)**

Type	Expenditure				
	2012-13	2013-14	2014-15	2015-16	2016-17
	(\$ million)				
(A) GRA expenditure					
(i) Recurrent:					
Operational equipment ≤ \$200,000 each for 2016-17 (Note 1)	129	146	174	198	207 (Note 7)
(ii) Capital:					
Police vehicle (Note 2)	134	88	74	120	81
Police vessel (Note 3)	1	2	8	19	21
Other operational equipment (Note 4)	22	40	23	15	27
ICT system (Note 5)	0.5	2	8	3	5
Subtotal [(i) + (ii)]	286.5	278	287	355	341

Table 2 (Cont'd)

Type	Expenditure				
	2012-13	2013-14	2014-15	2015-16	2016-17
	(\$ million)				
(B) CWRP expenditure					
ICT system (Note 6)	83	157	172	267	171
Total [(A) + (B)]	369.5	435	459	622	512

Source: HKPF records

Note 1: The corresponding financial limit for 2012-13 to 2015-16 was \leq \$150,000.

Note 2: The expenditures exclude those for the procurement of general-purpose vehicles funded by the Government Logistics Department (see para. 3.2).

Note 3: The low cashflow from 2012-13 to 2014-15 was mainly due to the delay in implementing the procurement projects (see para. 1.9(c)).

Note 4: The expenditures of other operational equipment costing $>$ \$200,000 each since 2016-17 ($>$ \$150,000 for 2012-13 to 2015-16) are charged to the GRA capital account.

Note 5: The expenditures of non-administrative computer systems (see Note 2 to para. 1.6) costing $>$ \$200,000 and \leq \$10 million each since 2016-17 ($>$ \$150,000 and \leq \$2 million respectively for 2012-13 to 2015-16) are charged to the GRA capital account.

Note 6: The expenditures of non-administrative computer systems costing $>$ \$10 million each since 2016-17 ($>$ \$2 million for 2012-13 to 2015-16) and administrative computer systems costing $>$ \$200,000 each since 2016-17 ($>$ \$150,000 for 2012-13 to 2015-16) are charged to the CWRP.

Note 7: According to the HKPF, the increase in expenditure from \$129 million in 2012-13 by 60.5% to \$207 million in 2016-17 was mainly due to: (a) the procurement of more personal protective equipment (e.g. helmets, protective gloves and boots) for frontline staff; (b) the normal replacement of bullet resistant vests; and (c) the general price and quantity increases for uniform and accoutrement items.

Procurement system

1.8 ***Guidelines and instructions.*** Similar to other government bureaux/departments, the HKPF's procurement activities and management of goods are governed by the Stores and Procurement Regulations (SPRs), relevant Financial Circulars, and Government Logistics Department (GLD — Note 3) guidelines. The HKPF has also set out its policies and procedures for procurement of goods and stores management in the Police General Orders and the Force Procedures Manual.

1.9 ***Roles and responsibilities.*** The Stores Management Division (SMD — Note 4) of the Finance Wing under the Finance, Administration and Planning Department in the HKPF Headquarters (see para. 1.3) is responsible for the overall procurement and stores management in the HKPF. Apart from some items supplied by the GLD and Correctional Services Department (e.g. some police uniform items), the SMD is responsible for procurement of goods exceeding \$50,000 in a single purchase and within the departmental direct purchase authority from the open market for use by different formations. Formations are delegated the authority to procure items not exceeding \$50,000 in a single purchase. As regards the ICT systems, vehicles, vessels, and other operational equipment, the procurement/management responsibilities are distributed as follows:

- (a) ***ICT systems and equipment.*** The Information Systems Wing (ISW — Note 5) under the Management Services Department is responsible for the

Note 3: *The GLD is the Government's central procurement agent. It provides bureaux/departments with procurement and supplies services including: (a) arranging issue of tenders exceeding departmental direct purchase authority and award of contracts on behalf of bureaux/departments; (b) providing advice on tendering and quotation procedures; and (c) providing advice on contract administration and monitoring.*

Note 4: *The SMD is headed by a Senior Treasury Accountant who is assisted by a Superintendent of Police and a number of Supplies Grade Officers seconded from the GLD.*

Note 5: *Headed by an Assistant Commissioner, the ISW comprises the Information Technology Branch (headed by a Chief Systems Manager), the Communications Branch (headed by a Chief Telecommunications Engineer) and seven divisions.*

procurement and maintenance of ICT systems and equipment (Note 6). As of June 2018, the HKPF had maintained the following 86 major ICT systems:

- (i) 18 mission critical systems providing support services that could not be interrupted, e.g. the Third Generation Command and Control Communications System (CC3 system) which supports the HKPF in answering and responding to 999 emergency calls (see para. 1.5);
- (ii) 30 critical support systems providing support services that could not be interrupted for more than 24 hours, e.g. the Accounting and Financial Management System which supports the HKPF's accounting and financial activities including procurement, funding control, payment and financial reporting; and
- (iii) 38 priority systems providing support priority services that could not tolerate a cumulated backlog of 30 days, e.g. the Stores Management System which supports procurement and inventory control.

In 2014, the HKPF completed a strategy review on its ICT systems, including ICT infrastructure and applications. The review report proposed that the HKPF should replace obsolete information technology hardware and software and communications infrastructure with a view to maintaining the HKPF's vital routine operation and strengthening its delivery of services to the public. In May 2016, the HKPF obtained the Legislative Council (LegCo) Finance Committee (FC)'s funding approval of \$396.8 million to upgrade 17 information technology (IT) infrastructure and applications, and \$855.4 million to replace the CC3 system with the Fourth Generation Command and Control Communications System which was estimated to be commissioned in stages from the second quarter of 2019 to the third quarter of 2021;

- (b) **Vehicles.** The Transport Division (Note 7) of the Support Wing under the Operations Department is responsible for the management of police vehicle

Note 6: *The SMD is responsible for the procurement of communications equipment exceeding \$50,000 and up to \$1.4 million in a single purchase for the Communications Branch.*

Note 7: *The Transport Division is headed by a Superintendent.*

Introduction

fleet. As at 1 April 2018, the HKPF had a fleet of 2,394 vehicles comprising 1,249 general-purpose vehicles (such as medium saloon cars and small motorcycles) and 1,145 specialised vehicles (such as large vans and armoured personnel carriers). The Transport Division is tasked to examine and evaluate the HKPF's needs on transport with the users and ensuring that their requirements are met through effective procurement and proper maintenance of such vehicles. It co-ordinates with the GLD on the procurement of all general-purpose vehicles (Note 8). For the procurement of specialised vehicles, the Transport Division procures the Electrical and Mechanical Services Trading Fund's (EMSTF — Note 9) services in conducting market research and arranging tenders;

- (c) **Vessels.** As at 30 April 2018, the Marine Region of the HKPF operated a fleet of over 110 vessels, all of which were designed to help fulfil its responsibilities in a wide range of operational and geographical environments. According to the SPRs, the Marine Department is the designated endorsement authority and agent for procurement of government vessels. In 2017, the Audit Commission (Audit) completed a review of "Procurement and maintenance of government vessels" covering police vessels among others. The results were reported in Chapter 2 of the Director of Audit's Report No. 69 of October 2017. In the circumstances, this Report would not cover the procurement of police vessels; and
- (d) **Other operational equipment.** For the procurement of other operational equipment such as uniform and accoutrement (e.g. helmet, footwear, and bullet resistant vests), arms and ammunition, and specialist supplies and equipment (e.g. X-ray scanning units), individual formations have the delegated authority to handle procurement with value not exceeding \$50,000. The SMD in conjunction with user formations arranges procurement for value exceeding \$50,000.

Note 8: *Under the General Regulations, the GLD is responsible for the efficient and economical management and operation of the government vehicle fleet. The Director of Government Logistics is responsible for the procedures, administration and co-ordination of the procurement of all government vehicles with the exception of certain specialised vehicles as mutually agreed between the Director of Government Logistics, user bureaux/departments and the Electrical and Mechanical Services Trading Fund.*

Note 9: *The EMSTF is the trading arm of the Electrical and Mechanical Services Department which provides electrical and mechanical services to government bureaux/departments.*

1.10 **Procurement process.** Table 3 summarises the workflow for the procurement of operational equipment:

Table 3

Workflow for the procurement of operational equipment

Key stages	Activities
Planning	<ul style="list-style-type: none"> • Identification of need • Collection of initial user requirements • Preliminary studies and market research to identify suitable products and potential suppliers • Obtaining funding approval from appropriate authority • Drawing up specifications • Preparation of quotation/tender documents
Invitation to tender/quote	<p>Procurement by quotation (Note 1):</p> <ul style="list-style-type: none"> • Obtaining 2 verbal/written quotations for purchasing value not exceeding \$50,000 and at least 5 written quotations for purchasing value exceeding \$50,000 to \$1.4 million (Note 2) <p>Procurement by tender (Note 3):</p> <ul style="list-style-type: none"> • Conducting tender for purchasing value above \$1.4 million
Evaluation and acceptance	<p>Procurement by quotation:</p> <ul style="list-style-type: none"> • Evaluation by officers of the procuring formation • Acceptance of offer by an officer of the Finance Wing or officer of procuring formation (e.g. an Assistant Supplies Officer or Executive Officer II or equivalent for purchasing value not exceeding \$50,000) <p>Procurement by tender:</p> <ul style="list-style-type: none"> • Examination of tender submissions and making recommendation by a tender assessment panel • Acceptance of tender by: (a) the Force Tender Committee (Note 4) for procurement (except works) not exceeding \$5 million; (b) the GLD Tender Board for procurement of stores/services (non-works) not exceeding \$30 million (\$15 million prior to July 2017); (c) Public Works Tender Board for procurement of works and related services not exceeding \$100 million (\$30 million prior to May 2016); and (d) the Central Tender Board for procurement exceeding the financial limits of the above tender boards

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Table 3 (Cont'd)

Key stages	Activities
Delivery and acceptance	<ul style="list-style-type: none">• Monitoring delivery and installation (if applicable) of equipment• Arranging product acceptance test (if applicable)

Source: HKPF records

Note 1: The HKPF maintains a central list of suppliers for inviting quotations.

Note 2: Since 1 January 2018, the financial limit has been changed from \$1.43 million to \$1.4 million.

Note 3: The HKPF is responsible for arranging tenders for procurements within the departmental limit of \$5 million and the GLD is the procurement agent for tenders beyond the departmental limit.

Note 4: The Committee is chaired by the Deputy Commissioner of Police (Management) and comprises members from the Finance, Administration and Planning Department of the HKPF.

Audit review

1.11 In May 2018, Audit commenced a review to examine the HKPF's work on the procurement of operational equipment, focusing on:

- (a) implementation of major ICT projects (PART 2);
- (b) procurement of police vehicles (PART 3); and
- (c) procurement of other operational equipment (PART 4).

Audit has found room for improvement in the above areas and has made a number of recommendations to address the issues.

General response from the Government

1.12 The Secretary for Security welcomes the audit recommendations. The Secretary for Financial Services and the Treasury, the Commissioner of Police, the Director of Government Logistics and the Director of Electrical and Mechanical Services agree with the audit recommendations.

Acknowledgement

1.13 Audit would like to acknowledge with gratitude the assistance and full cooperation of the staff of the Financial Services and the Treasury Bureau (FSTB), HKPF, GLD, EMSTF and the Office of the Government Chief Information Officer (OGCIO) during the course of the audit review.

PART 2: IMPLEMENTATION OF MAJOR INFORMATION AND COMMUNICATIONS TECHNOLOGY PROJECTS

2.1 The HKPF's ICT systems are instrumental to its vital routine operation for delivering police services to the public. This PART examines the HKPF's implementation of major ICT projects funded under the CWRP.

Major ICT projects in the HKPF

2.2 ***ICT project governance.*** The HKPF has set up an Information and Communications Systems Strategy Steering Committee (ICSSSC — Note 10) to oversee the departmental IT strategy and implementation. For each major ICT project, normally a three-tier project governance structure is adopted, which includes a project steering committee (i.e. Executive Committee), a project assurance team (i.e. Project Management Team) and a project team (Note 11). Before commencing a project, a contractor will prepare a project initiation document for the HKPF's approval, covering the monitoring and control mechanism, including regular working-level checkpoint meetings, highlight reports and exception handling. During project implementation, a contractor is also required to submit end-stage reports/project closure report for the Executive Committee/Project Management Team's approval. Executive Committee/Project Management Team meetings will be convened to deliberate and approve project issues or change requests proposed by the contractor. For regular monitoring and control, the project team will hold checkpoint meetings (weekly or bi-weekly) with the contractor which prepares project highlight

Note 10: *The ICSSSC is the HKPF's departmental IT Steering Committee to steer and monitor the progress of implementation of the department's information systems and information system strategy plan, and to oversee related issues such as funding arrangements and manpower resources. The ICSSSC, chaired by the Director of Management Services, comprises members including all the HKPF's heads of Departments and heads of IT functions.*

Note 11: *An Executive Committee is normally chaired by the Director of Management Services with representatives of OGCI, user wings (at directorate officer level) and technical staff as members. A Project Management Team is normally chaired by the Assistant Commissioner of Police (Information Systems) with user wings (at Senior Superintendent level) and technical staff as members.*

reports for updating the Executive Committee/Project Management Team meetings on a regular basis.

2.3 In November 1992, during the FC's consideration of the item "Implementation of the Information Systems Strategy", the then Secretary for the Treasury (now the Secretary for Financial Services and the Treasury) undertook to provide an annual report to FC members on the progress of implementation of all major computer projects. Thereafter, every year, OGCIO submits to the FC an annual report on implementation of major ICT projects funded under CWRP Head 708 (non-administrative computer systems) and Head 710 (administrative computer systems — see Note 2 to para. 1.6). According to OGCIO, the purpose of the annual report is to keep the FC informed of the progress of approved computerised projects (including the actual expenditure and any revision to original scheduled implementation date) to facilitate its monitoring of the progress of major ICT projects. Based on the annual reports submitted in 2016-17 and 2017-18 (showing the positions as at 31 March 2016 and 31 March 2017 respectively), five of the HKPF's eight ICT projects under report could not meet the scheduled implementation dates stated in the respective FC funding papers. Audit examined three of these five projects (see Appendix B for details) and found that there were areas for improvement in their implementation:

- (a) replacement of the command and control communications system (i.e. implementation of the CC3 system — see para. 1.9(a)) with significant extension and enhancement work which was completed by February 2016, almost 10 years after the system roll-out in March 2006 (paras. 2.4 to 2.14);
- (b) enhancement of the IT infrastructure by using virtual workstation (VW) (initial implementation) which was implemented in June 2017, some 5 years after the scheduled date of June 2012 (paras. 2.15 to 2.26); and
- (c) development of the Second Generation of Communal Information System (CIS2) with scheduled implementation date extended by 45 months from November 2015 to August 2019 (paras. 2.27 to 2.34).

Implementation of the Third Generation Command and Control Communications System

2.4 In June 2001, the HKPF obtained the FC's funding approval of \$948 million under Head 708 of the CWRP to replace the Second Generation Command and Control Communications System (Note 12) which would reach the end of its useful life in 2004. According to the FC funding paper, the digital CC3 system (see para. 1.9(a)(i)) would have the following main features and benefits:

- (a) **Main modules.** The CC3 system (see Figure 1 for a schematic diagram) would have four main modules:
 - (i) **Beat Radio System (subsequently known as the Integrated Communications System (ICS) — Note 13).** The digital radio infrastructure would provide comprehensive radio coverage both in terms of cross-communications between frontline officers and areas covered to facilitate the deployment of police resources and strengthen the HKPF's capability to prevent and detect crime;
 - (ii) **Computer-assisted Command and Control System (CACCS3).** The CACCS3 was a back-end computer-aided dispatch system with front-end console terminals installed in three Regional Command and Control Centres (RCCCs) and local police stations to support controllers in resource deployment. The CACCS3 would be provided with graphical user interface and Chinese language input capability to enhance its user-friendliness;
 - (iii) **999 sub-system (subsequently known as the Emergency Telephone System (ETS)).** The sub-system would enable 999 calls to be routed

Note 12: In 1996, Audit conducted a review of "The implementation of the Second Generation Command and Control System and the provision of the 999 emergency call service" and the results were reported in Chapter 8 of the Director of Audit's Report No. 27 of October 1996.

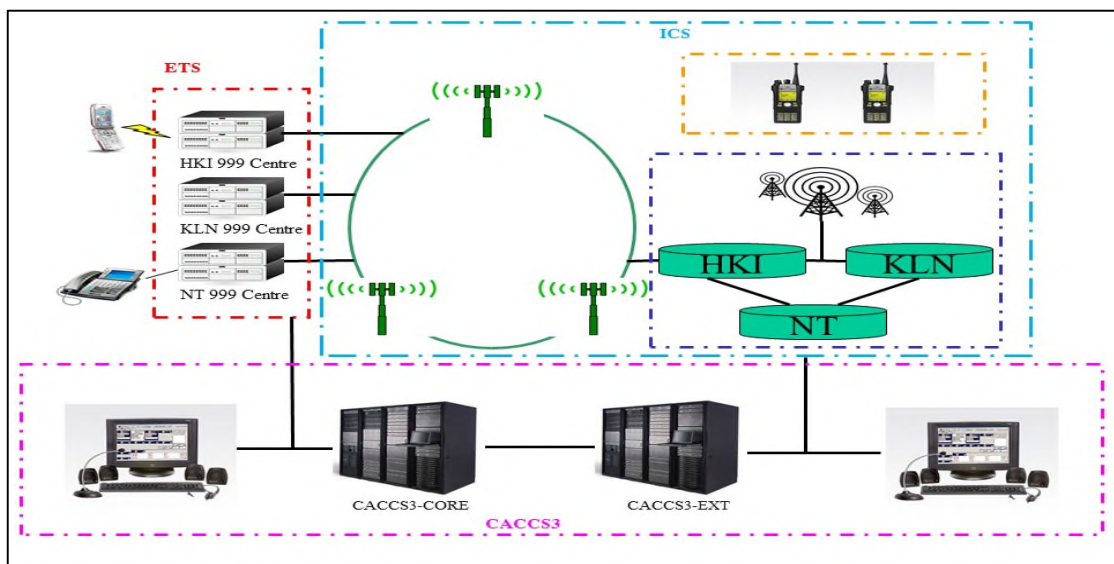
Note 13: The ICS would comprise beat radios, microwave links, radio repeaters, antenna equipment and radio dispatch workstations, etc. It would transmit voice communications between the Regional Command and Control Centres and frontline officers.

around the same RCCC or to the other two RCCCs automatically if there was a sudden surge of calls in one RCCC; and

- (iv) **Mobile computing sub-system (subsequently subsumed under CACCS3).** Mobile data terminals would be installed on board police emergency response vehicles in addition to mobile radios to provide dual data and voice communications capability;

Figure 1

Schematic diagram of the CC3 system



Source: HKPF records

- (b) **Capability of further expansion.** The new digital radio infrastructure would be built to open standards and capable of further expansion. Equipment such as beat radios would no longer be proprietary and could be procured from open markets at lower cost. In addition, the new system would allow an incremental approach to development and system enhancement in future, obviating the need for major changes and upgrades, which would be more cost effective;
- (c) **Comprehensive radio coverage.** The new system would provide comprehensive radio coverage, both in terms of cross-communication

Implementation of major information and communications technology projects

between frontline officers and areas covered, in support of the HKPF operations. The proposed system would facilitate the deployment of police resources and strengthen the HKPF's capability to prevent and detect crime; and

- (d) ***Improving public service.*** The CC3 system would allow direct access to various information systems, e.g. the registration of persons system for identity card check. It was expected that the average time required for such check would be reduced by 10 to 15 seconds, thus freeing up radio channels and RCCC operators for voice communication of higher priority and other urgent tasks. The 999 sub-system would provide a speedier response to emergency calls when all lines were engaged by making available a further ten call takers in each RCCC. With the provision of mobile data terminals, police emergency response vehicles would be able to effectively function as reporting centres with members of the public being able to make reports on the spot.

2.5 ***CC3 contracts.*** According to the HKPF, the CC3 project was mainly implemented by two contracts, together with other project-related activities. In March 2003, the GLD as the procurement agent (see Note 3 to Table 3 in para. 1.10) awarded a contract (Contract A) for the design, supply, delivery, installation and implementation of the CC3 system (excluding CACCS3) at \$333.8 million for completion in April 2006. In May 2003, the GLD awarded another contract (Contract B) for the design, supply, delivery, installation and implementation of the CACCS3 at \$36.5 million for completion in April 2006 (Note 14). In March 2003, the GLD informed the Central Tender Board that the accepted tender price of Contract A (\$333.8 million) was significantly lower than the estimated contract cost of \$812.7 million (Note 15) because the successful tenderer was both a key player of the terrestrial trunked radio technology and a major equipment manufacturer which

Note 14: *Both Contracts A and B included the provision of 10-year maintenance services (including the first-year free warranty) at \$22.9 million per year and \$6.8 million per year respectively. The annual recurrent costs were funded by the HKPF controlled recurrent subhead in the GRA.*

Note 15: *The cost estimate was made by the HKPF based on the result of a market research conducted in January 2001 to obtain budgetary and technical information from 42 respondents.*

was able to leverage existing expertise in lowering the development and implementation costs.

2.6 ***CC3 system roll-out in 2006.*** According to the FC funding paper of June 2001, the CC3 system was planned for phased system roll-out from January 2004 to August 2005. In the event, the CC3 system commenced operation by phases between December 2004 and March 2006. In July 2009, the HKPF indicated in the 2008 report on implementation of major ICT projects submitted to the FC (see para. 2.3) that the CC3 project closure was scheduled for the second quarter of 2009 upon the issuance of the final acceptance certificate. After the issuance of final acceptance certificate of Contract A in November 2009 and settlement of all contract payments, the final contract sum was \$398.5 million (including contract variations of \$64.7 million — Note 16) for Contract A and \$36.5 million for Contract B. However, in the 2009 report on implementation of major ICT projects submitted to the FC in May 2010, the HKPF reported that for better radio coverage, the CC3 system would be extended to the Hong Kong International Airport and 59 indoor locations. The project expenditure up to March 2010 was \$558.9 million (\$435 million being the total contract sum of Contracts A and B plus \$123.9 million being expenditure on contract staff, site preparation and extension and enhancement work).

2.7 ***Extension and enhancement work.*** From September 2004 to July 2015, the CC3 Executive Committee (see Note 11 to para. 2.2) approved 43 items of extension and enhancement work, including 33 items approved after the system roll-out of the CC3 in March 2006 (see Appendix C). These 43 work items were completed by various contractors and in-house staff by February 2016 with a total cost of \$322 million charged to the CC3 project subhead under Head 708 of the CWRP. In the 2016 report on implementation of major ICT projects submitted to the FC in January 2017, the HKPF reported that the total expenditure of the CC3 project was \$806.1 million when the CC3 project subhead was closed in March 2016. Table 4 shows an analysis of the CC3 project expenditure of \$806.1 million. According to the HKPF, the unspent balance of \$141.9 million (the approved funding of \$948 million less \$806.1 million) was recorded in the Government Financial Management Information System in March 2016 after the closure of the CC3 project.

Note 16: *The contract variations for meeting additional hardware and software requirements were approved by the GLD (see para. 2.22) from 2004 to 2007.*

Implementation of major information and communications technology projects

Table 4

**An analysis of the actual expenditure charged to the CC3 project vote
(March 2016)**

	\$ million
(A) FC approved funding	948.0
(B) Actual expenditure	
Contract A	333.8
plus variations	<u>64.7</u> 398.5
Contract B	<u>36.5</u>
Total contract sum	435.0
Contract staff and site preparation	49.1
43 items of extension and enhancement work	<u>322.0</u>
Total	806.1
(C) Unspent balance [(A) – (B)]	141.9

Source: Audit analysis of HKPF records

Need to strengthen control over the use of approved funding of non-works projects under CWRP

2.8 ***Need to better monitor unspent funds resulting from lower-than-estimated tender prices for capital non-works projects.*** According to Financial and Accounting Regulation 320, where Controlling Officers have reason to believe that funds surplus to requirements exist under a subhead, they shall immediately inform the FSTB so that the excess may be reserved. As mentioned in paragraph 2.5, the accepted tender prices of Contracts A and B in 2003 totalled \$370.3 million (\$333.8 million for Contract A and \$36.5 million for Contract B) which was significantly lower than the pre-tender estimate of \$849.7 million (i.e. \$812.7 million for Contract A and \$37 million for Contract B), suggesting that there might likely be surplus funds for the whole CC3 project. In the event, the final contract sum of Contracts A and B was \$435 million and hence there was an unspent balance of \$414.7 million. In the 2008 report on implementation of major ICT projects submitted to the FC, the HKPF indicated that the CC3 project was scheduled for closure in the second quarter of 2009 upon the issuance of the final acceptance certificate. However, after the issuance of the final acceptance certificate of Contract A in November 2009, the HKPF had not closed the project accordingly or reported the unspent balance of \$414.7 million under

Contracts A and B to the FSTB. In response to Audit's enquiry in this regard, the HKPF in October 2018 said that:

- (a) there were still activities to be undertaken within the CC3 project scope, such as the provision of radio coverage at 59 indoor locations and at the Hong Kong International Airport. These items were part and parcel of the provision of comprehensive CC3 radio coverage as stated in the FC funding paper; and
- (b) the updated implementation progress of the project had been reported to the FC and the FSTB through the annual reports on implementation of major ICT projects (see para. 2.3) up to the project closure in 2015-16, though the status of "project closure" in the 2008 report should have been more accurately reported as closure of Contracts A and B.

As regards (b) above, the FSTB confirmed in October 2018 that the objective of the annual reports was mainly to keep the FC informed of the progress of major computer projects to facilitate its monitoring.

2.9 Audit notes that for works projects funded under the CWRP, to uphold financial discipline, there are other more specific requirements on monitoring and reporting surplus funds in addition to the general requirement of Financial and Accounting Regulation 320. However, these specific requirements only apply to works projects and have not been extended to non-works projects such as the CC3 system:

- (a) *Administrative cap on works projects.* In May 2002, the then Secretary for the Treasury announced the introduction of an administrative cap arrangement whereby the approved funding for works projects may be adjusted taken into account the lower-than-estimated tender prices, the actual works progress and planning development. The purpose of the arrangement is to prevent internal resources allocated to approved capital works projects from being locked up unnecessarily. The works departments concerned have to apply to the FSTB for lifting of the administrative cap to cover any subsequent increase in forecast expenditure even when the overall approved funding has not been exceeded. However, such arrangement has not been extended to non-works projects; and

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- (b) *Reporting of variation between accepted tender prices and estimated contract sum of approved works projects to the FC.* In 2004, after deliberation of Chapter 3 of the Director of Audit's Report No. 42 on the Harbour Area Treatment Scheme Stage I, the Public Accounts Committee of LegCo expressed the following concerns:
- (i) works departments had been given too much discretionary power to decide whether or not to adjust the approved project estimate even when the accepted tender price was much lower than the estimated contract sum;
 - (ii) in particular, the approved project estimate might be used to cover huge sums of highly uncertain dispute settlements and contract variations; and
 - (iii) the then practices of works departments rendered it difficult for LegCo to effectively monitor the use of funding for works projects.

In response to the Public Accounts Committee's recommendation, the Government has since 2005 provided quarterly reports to the Public Works Subcommittee of the FC on works projects with justifications when the deviation between the accepted tender prices and the original estimated provision equals to or exceeds \$15 million or 10% of the original estimated provision in the approved project estimates, whichever is the greater. However, such reporting requirement has not been extended to capital non-works projects. In Audit's view, the FSTB needs to consider applying similar administrative cap/reporting requirements adopted for capital works projects to capital non-works projects for better monitoring of the unspent funds resulting from lower-than-estimated tender prices.

2.10 *Need to strengthen control over the use of unspent funds in CWRP projects.* Paragraph 4 of Financial Circular No. 2/2012 on "Procedures for making changes to the Estimates of the CWRP" provides that the Controlling Officer for each Head in CWRP can incur expenditure under a subhead according to the approved scope and approved project estimate. As mentioned in paragraph 2.7, after the system roll-out of the CC3 in March 2006, the Executive Committee approved 33 items of extension and enhancement work from July 2006 to July 2015, with a total expenditure of \$285.64 million charged to the CC3 project subhead. Notwithstanding the use of substantial amount of public fund, Audit noted that there was only an internal approval

process whereby the Project Management Team submitted funding papers setting out the scope, estimated cost, timing and justifications for the proposed work items to the CC3 Executive Committee for consideration and approval.

2.11 In October 2018, the HKPF informed Audit that:

- (a) with an aim to provide a more comprehensive radio coverage and ensure the stability and reliability of the CC3 system, the Executive Committee approved 33 items after core system roll-out in 2006, on the premises that they were within the project scope. Some of the work items had to be introduced during the course of the CC3 project implementation to cater for the discontinued support services for some system components;
- (b) because of technical uncertainties and time constraint in pressing ahead with the implementation of the CC3 project, only 21 indoor locations were included as mandatory requirements for the provision of radio coverage in Contract A. Other uncertain locations were included as “desirable requirements” but eventually not taken forward. They were subsequently implemented as enhancement items. The provision of radio coverage to indoor locations had all along been the intention of the CC3 project; and
- (c) the above were not considered as other expenditure items outside the project ambit, but were essential work without which the project objective of the provision of comprehensive radio coverage, as stated in the FC funding paper, would not have been met.

2.12 While the HKPF had operational needs to carry out the extension and enhancement work for the CC3 system, Audit notes that:

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- (a) the FC's approval of \$948 million was for the replacement of the Second Generation Command and Control Communications System by the CC3 system and was not a blanket approval for extension and enhancement work for some ten years after the CC3 system roll-out in 2006 (Note 17). For example, a total of \$107.11 million for three items of enhancement work of the CC3 system (Note 18) was approved by the Executive Committee in July 2014, some eight years after the CC3 system roll-out in 2006;
- (b) while the HKPF had provided annual reports on the progress and the expenditure position of the CC3 project to the FC (see para. 2.3), such annual reports were in the form of an information note without details such as justifications for carrying out the extension and enhancement work and their estimated costs; and
- (c) Financial Circular No. 1/2004 on "Responsibility of Controlling Officers" stipulates, among others, that: (i) Controlling Officers must satisfy themselves that there are adequate procedures to monitor expenditure in order to ensure that it is only incurred within the limits and scope authorised; and (ii) where in doubt, Controlling Officers should consult the

Note 17: *As regards the expenditure control of extension and enhancement work of ICT projects funded under Head 710 of the CWRP, OGCIO informed Audit in July 2018 that:*

- (a) *if the work as stated in the funding paper had been duly implemented, i.e. live production of the system, completion of nursing/warranty period and completion of all required deliverables, bureaux/departments should finalise the project expenditure and close the project vote, and separate voting of funds should be made for any subsequent system upgrading/enhancement; and*
- (b) *some additional business requirements, which were discovered during project implementation and within the original project scope, might be arranged for implementation after system live run (within a reasonable period of time) and charged to the project vote on the condition that the related project fund should be properly earmarked beforehand and the additional business requirements were essential for the project to achieve its planned objectives and expected benefits. These might include some essential business requirements later found (such as adoption of up-to-date security measures).*

Note 18: *These included: (a) enhancement of ETS call processing and distribution sub-systems at \$25.61 million; (b) ICS enhancement (see Figure 1 in para. 2.4(a)) at \$60 million; and (c) enhancement of CACCS3 servers, workstations and notebooks at \$21.5 million (see items 39, 40 and 42 at Appendix C).*

Treasury Branch of the FSTB. In Audit's view, the HKPF should have consulted the FSTB on the propriety of charging the expenditure of the extension and enhancement work implemented after system roll-out into the CC3 project vote, in line with the spirit of Financial Circular No. 1/2004.

2.13 Audit also notes that the FSTB has introduced a new procedure with effect from April 2018 whereby further expenditure on the approved project estimates of CWRP items which have been approved for ten years or more would be frozen unless otherwise justified by Controlling Officers. However, in light of the above audit findings, there is still a need for the FSTB to introduce additional measures to strengthen the control over the use of funds resulting from the lower-than-estimated tender prices in CWRP projects once surplus is identified.

2.14 *Areas for improvement in project specification.* In the 2009 report on the implementation of major ICT projects submitted to the FC in May 2010, the HKPF reported that for better radio coverage, the CC3 system would be extended to the Hong Kong International Airport and other selected indoor locations, and the work was scheduled for completion by December 2012. In the event, these two work items (see items 18 and 19 at Appendix C) were completed in August 2015 and February 2016 respectively, i.e. more than seven years after the Executive Committee's approval in June 2008, as follows:

- (a) an extension of the CC3 indoor radio coverage to the Hong Kong International Airport was approved at an estimated cost of \$81.42 million for completion in November 2011. In the event, the extension work was completed in August 2015 at a cost of \$38.11 million (see details in Case 1); and
- (b) an extension of the CC3 radio coverage to 59 indoor locations was approved at an estimated cost of \$94.3 million for completion in July 2011. In the event, the extension work was completed in February 2016 at a cost of \$22.74 million (see details in Case 2).

Audit found that there were areas for improvement in project specification as shown in these cases.

Case 1

Extension of CC3 indoor radio coverage to Hong Kong International Airport

1. Since 1998, the radio communications of the Police Airport District had been supported by the Airport Authority's mobile radio system which was not compatible with the HKPF's beat radio system outside the Hong Kong International Airport. Therefore, the Police Airport District had no direct radio access to the then Second Generation Command and Control Communications System. In August and September 2000, the HKPF convened a number of user group meetings to examine the operational needs for formulating a force-wide policy on the scale of provision (of radio coverage) within the CC3 project scope. While the Field Users Group considered that CC3 radio system should cover all areas of the Airport, the Senior Users Group decided to: (a) adopt a baseline approach such that the radio coverage should not be less than that available at that time; and (b) prioritise the radio coverage requirement with the first priority accorded to outdoor patrol areas. In the event, indoor radio coverage for the Airport was not included in the priority list. According to the FC funding paper for the CC3 project of June 2001, an amount of \$105 million was earmarked for the procurement of radio equipment to be installed in 120 base stations located at hilltop sites and on the rooftops of buildings (i.e. outdoor locations excluding the indoor locations of the Airport).

2. In October 2018, the HKPF informed Audit that the Airport had not been included as a priority location due to uncertainties including feasibility of solutions, and cost and time required to negotiate with the Airport Authority and landlords of buildings adjacent to the Airport for installing radio equipment within their premises. Otherwise, there would be a delay in delivering the CC3 system.

3. From December 2003 to March 2004, the HKPF discussed with the Airport Authority on the provision of mobile radio service given that the Airport Authority's radio system would become obsolete in 2008. In August 2005, the HKPF noted that extending the CC3 radio coverage to the Airport, which would require about \$30 million to \$40 million, could enhance the radio communications between the Police Airport District and other land formations using the CC3 system in the vicinity. The HKPF then decided to extend the CC3 radio coverage to the Airport after system roll-out in 2006.

Case 1 (Cont'd)

4. In June 2008, the Executive Committee approved an extension of the CC3 radio coverage to the Airport at an estimated cost of \$81.42 million for completion in November 2011. From January 2010 to September 2014, the HKPF awarded four contracts to implement the extension work at an estimated total cost of \$32.9 million (or 40% of the approved estimate of \$81.42 million — Note). In August 2015, the extension work was completed at a total cost of \$38.11 million. According to the HKPF, the longer time taken for completing the extension work was due to the prolonged discussions with relevant landlords to agree on the installation of the antennas/amplifiers.

Audit comments

5. While the FC was informed in the CC3 funding paper that the new system would provide comprehensive radio coverage, there were uncertainties (see para. 2 above) with some indoor locations (including the Airport) which precluded their inclusion in the development of the CC3 system from the outset. In Audit's view, the HKPF should have set out in the FC funding paper that it would adopt a phased implementation approach by completing the CC3 system development work first and implementing indoor radio coverage work of the Airport and other selected indoor locations after the roll-out of CC3 system.

Source: Audit analysis of HKPF records

Note: According to the HKPF, the reduction in cost estimate was mainly due to: (a) the reduced number of locations requiring installation of radio equipment from the planned 17 to 12 because some locations were found to be adequately covered by outdoor radio signals; and (b) the identification of a cost-effective solution by using the existing antenna infrastructure systems in some premises.

Case 2

Extension of CC3 radio coverage to 59 indoor locations

1. Similar to the situation of the Airport in Case 1, there was inherent limitation in the HKPF's radio coverage for indoor locations as outdoor radio signal might not be able to penetrate deep into the buildings. As a result, police officers would not be able to communicate with the RCCCs (see para. 2.4(a)) through the radio system and had to use cellular phones which did not support one-to-all communications for making effective responses in an emergency case. Moreover, as mentioned in the FC funding paper of June 2001, the CC3 system would be using a lower transmission power based on a new standard for radio system (which could save energy cost and prevent eavesdropping). The weaker radio signal would affect radio communications between frontline staff in indoor locations and in the RCCCs.

2. According to the HKPF, there were uncertainties with some of the indoor locations (i.e. feasibility of solutions and costs). As such, only 21 indoor locations were included as mandatory requirements (Note 1) in Contract A. The other locations were included as desirable requirements under four categories (Note 2) without specifying the number of such locations to be covered. The tenderers had the option to meet such requirements or not (i.e. with higher technical scores awarded to tenderers opting to meet such requirements). After the award of Contract A in March 2003, the HKPF requested the contractor which had opted to meet the desirable requirements in its tender to provide radio coverage for the desirable locations. However, the contractor claimed that, due to the significant number of such locations, the HKPF should bear the cost of installing radio equipment in these locations. In November 2005, after examining the contract provision, the HKPF considered that the provision of indoor radio coverage under the desirable requirements was not covered by Contract A.

3. After the CC3 system roll-out in 2006, user formations made requests for providing CC3 radio coverage in 179 indoor locations to enhance communications between frontline officers and the RCCCs. After reviewing the requests, the Executive Committee in June 2008 approved \$94.3 million for the extension of the CC3 radio coverage to 59 indoor locations for completion in July 2011. From April 2009 to September 2011, the HKPF awarded six contracts through open tendering to implement the extension work at an estimated total cost of \$25.9 million (or 27% of the approved estimate of \$94.3 million — Note 3).

Case 2 (Cont'd)

4. In February 2016 (over four years after the planned completion date of July 2011), the extension work was completed at a cost of \$22.74 million. According to the 2013 report on implementation of major ICT projects submitted to the FC in March 2014, the longer time taken for completing the extension work was due to prolonged discussion with relevant landlords to agree on installation of the antennas/amplifiers. Due to landlords' objections, the extension work was only carried out in 58 indoor locations instead of the planned 59 locations.

Audit comments

5. While the HKPF intended to implement radio coverage for the uncertain indoor locations as desirable requirements under Contract A, this could not be achieved because of the contractor's objection to its liability for the cost of the significant number of such unspecified locations. Audit could not find records showing that the HKPF had sought legal advice in this regard. In the event, the radio coverage extension work had to be carried out under separate contracts. To prevent recurrence of similar problems, the HKPF needs to improve contract specifications for similar ICT projects (such as specifying the number of locations to be covered with details of the locations to be provided to the contractor at a later stage).

Source: Audit analysis of HKPF records

Note 1: The mandatory requirements included 4 public transport facilities, 2 shopping arcades with previous records of incidents requiring police response and 15 police premises.

Note 2: The desirable requirements included four categories of locations, viz: (a) report rooms, briefing rooms and canteens of all police stations; (b) border crossing points; (c) major government buildings with public access; and (d) shopping arcades connected to transport interchange.

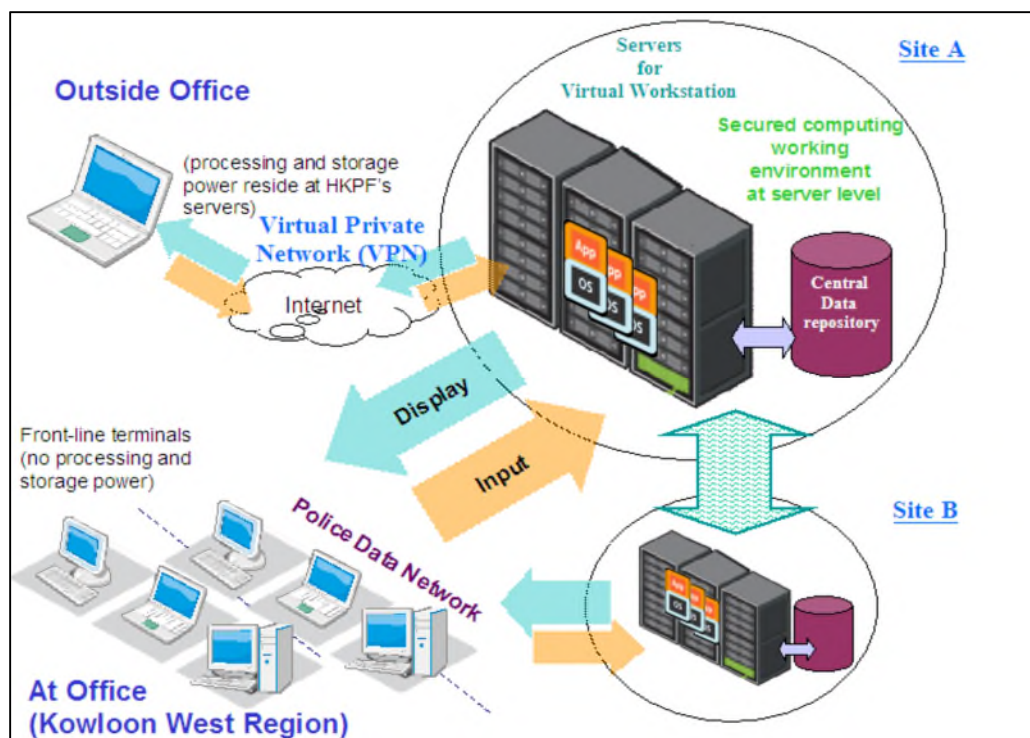
Note 3: In response to Audit's enquiry on the reasons for the lower cost estimate, the HKPF in September 2018 said that it had identified a cost-effective solution by using the existing antenna infrastructure systems in some premises.

Enhancement of the information technology infrastructure by using virtual workstation (initial implementation)

2.15 According to the HKPF, its disciplined police officers are deployed in over 250 divisions/formations to provide round-the-clock policing services. As part of their work, police officers have to access a number of information systems through local area networks. In light of their shift work pattern, the HKPF has provided computer facilities to police officers on a shared-use basis. As part of the data security measures, the HKPF has to conduct periodic inspections of information residing in the shared computer terminals. To enhance the accessibility, mobility and security of information technology support for the police officers, in May 2010, the HKPF obtained the FC's funding approval of \$40.72 million under Head 710 of the CWRF to introduce VWs in the Kowloon West Region as an initial enhancement before rolling out of the VW project to cover all disciplined police officers (see Figure 2 for a schematic diagram of the VW project).

Figure 2

Schematic diagram of the VW project



Source: HKPF records

2.16 According to the FC funding paper of May 2010, by migration from the shared computer facilities to allocating VWs to individual officers, the VW project was expected to bring both operational and financial benefits including the following (see Appendix D for details):

- (a) ***Increased accessibility.*** Accessibility would be enhanced by increasing the number of computer terminals from about 1,100 physical workstations to around 1,800 VWs with secured processing and storage environment at the central server;
- (b) ***Enhanced operational efficiency and mobility.*** The operational efficiency would be enhanced through increased provision of frontline terminals, individual processing and storage compartment at the server end. The officers' operational mobility would also be improved as they could access information stored at the central server within and outside their offices;
- (c) ***Enhanced data security and confidentiality.*** With VW infrastructure, all information/documents under processing would reside at the secured data storage compartments in data centres and only screen image would be transferred to frontline terminals through secured data channel. As no data would be downloaded to frontline terminals, officers in general would not be able to carry data on external devices except with special approval. As a result of these features, information confidentiality could be secured; and
- (d) ***Notional cost savings.*** Notional savings of \$20.7 million per annum were expected as a result of increased coverage of office automation, and reduction in staff effort for performing security audits on terminals, inspecting software installed in local computers and updating anti-virus software. The notional cost savings after offsetting the recurrent cost arising from the VW project could recover the project cost in five years' time.

Delay in project implementation

2.17 While the VW project was completed at a total cost of \$40.33 million (i.e. within approved provision of \$40.72 million — see para. 2.15), there was a delay in implementation of 60 months (i.e. the system only came into operation in June 2017 instead of June 2012 as scheduled in the FC funding paper — see para. 2.3(b)). Audit examination of the HKPF's records revealed the following factors contributing to the delay:

- (a) longer time (20 months) taken for tender preparation (see para. 2.18);
- (b) extra time (13 months) spent on re-tendering after an unsuccessful first tender (see paras. 2.19 and 2.20); and
- (c) longer time (27 months) taken for contract work (see paras. 2.21 and 2.22).

Areas for improvement

2.18 ***Longer time taken for tender preparation.*** According to the FC funding paper of May 2010, tender and specification preparation was expected to take 5 months (from funding approval in May to October 2010). However, the actual time taken was 25 months, i.e. from May 2010 to June 2012 when the GLD invited tenders for the VW project. Audit noted that the tender preparation process involved consultation with a number of parties (i.e. the GLD, the Department of Justice (DoJ) and the Intellectual Property Department — Note 19) before the HKPF could finalise the tender specifications/documents. In Audit's view, the HKPF needs to make due allowance for the time required for tender preparation, especially for procurement involving new technology (such as the VW project) without precedent cases for reference to ensure that the project implementation schedule included in the FC funding paper is realistic.

Note 19: *The Intellectual Property Department provided legal advice on the proprietary right in using the tender information and other issues involving intellectual property rights in system development.*

2.19 ***Cancellation of tender exercise.*** According to the FC funding paper of May 2010, tendering and contract award was expected to take 11 months (from October 2010 to September 2011). However, the actual time taken was 24 months (from June 2012 to June 2014) due to the need for re-tendering:

- (a) ***First tender.*** In response to the tender invitation in June 2012, two tenderers submitted a total of five bids. However, after tender assessment, there was no conforming tender. With the Central Tender Board's approval, the tender exercise was cancelled in December 2012. In giving approval to cancel the tender exercise, the Board said that the HKPF should review whether the tender requirements were too stringent; and
- (b) ***Second tender.*** After the HKPF had revised the tender requirements, the GLD arranged another tender invitation in July 2013. By close of tender in August 2013, four tenders were received. After tender assessment, two of the four tenders were found to be non-conforming. In June 2014, the GLD awarded a contract to the tenderer of the remaining lowest conforming tender at \$33.8 million (Note 20).

As cancellation of a tender exercise would result in delays in meeting operational needs and nugatory tendering work, the HKPF needs to take measures to prevent recurrence of similar problem. In this connection, Audit has noted that there is room for improvement in the HKPF's preparation of tender specifications (see para. 2.20).

2.20 ***Need to improve tender specifications.*** According to the HKPF, there should be at least seven potential suppliers in the market capable of meeting the tender requirements but none of them made bid in the first tender exercise. Upon the GLD's request, the HKPF held review meetings with the potential suppliers in December 2012 and learnt that: (a) there was misunderstanding of the requirements by the suppliers (e.g. the required portable DVD writer was misinterpreted to be a video player which would entail a greater network bandwidth requirement); and (b) the supplier's experience and skill requirements were considered too restrictive. In light of the comments, the HKPF revised the tender specifications to remove the

Note 20: *The contract also included the provision of a 10-year maintenance service (including 1-year free warranty) at \$3 million each year which was funded by the HKPF's recurrent subhead in the GRA.*

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restrictive requirements and other nice-to-have but non-essential requirements (e.g. tape back-up of user data in addition to on-line back-up). As a result, a suitable tenderer was selected in the second tender exercise. The HKPF needs to remind ISW officers of the SPR 350 requirements that they should word tender specifications in easily comprehensive general terms and guard against over-prescribing requirements.

2.21 *Longer time taken for contract work.* According to the FC funding paper of May 2010, contract work was expected to take 9 months (from September 2011 to June 2012). However, the HKPF subsequently specified in the tender documents that the system should be ready for use within 20 months (i.e. by February 2016) after contract award in June 2014. Moreover, in December 2016, the contractor requested an extension of contract period by 16 months due to technical problems encountered in the contract work (e.g. extra time was spent on accommodating some legacy applications which ran on a different operating system from that of the VWs). In other words, the actual time taken for the contract work was 36 months instead of 9 months as stated in the FC funding paper. Similar to the audit findings in paragraph 2.18, the HKPF needs to make realistic assessment on the implementation schedule for inclusion in the FC funding paper.

2.22 *Need to tighten control over contract variations.* According to SPR 520(b) and GLD Circular No. 2/2013, Controlling Officer, or a designated officer of appropriate rank (i.e. the Financial Controller in the case of the HKPF), may approve minor variations including extension of contract period, change in project team members stipulated in the contract and product substitution due to obsolescence or technology advancement. For other variations (e.g. increase in contract value), the GLD is the approving authority (Note 21). In granting approval for a contract variation to cover an extension of contract end date from February 2016 to June 2017, the Financial Controller commented that it was highly undesirable that the request for contract extension was made in December 2016 (i.e. 10 months after the scheduled contract end day). In this connection, Audit noted that there were seven other occasions whereby approvals for contract variations were required. While prior

Note 21: *The GLD is the approval authority for variation of contracts for accumulated value of variations up to 50% of the GLD Tender Board's financial limit (i.e. \$15 million since July 2017) but not exceeding 30% of original contract value.*

approvals were obtained in four cases (Note 22), the same had not been done for three other variations (involving changes in project team members from July to December 2014). In response to Audit's enquiry, the HKPF in October 2018 said that: (a) these three variations were of minor nature and had been endorsed by the subject team of the VW contract; and (b) covering approvals by the Financial Controller had been granted in early October 2018. In Audit's view, the HKPF needs to tighten control over contract variations to prevent recurrence of similar problems in future.

Review of the VW project

2.23 According to the FC funding paper of May 2010, the HKPF would evaluate the cost-effectiveness of the VW system in the Kowloon West Region before determining the timing and approach of subsequent implementation in other Regions. In January 2018, the ISW briefed the ICSSSC (see para. 2.2) of its review results of the VW project as follows:

- (a) ***Current status.*** By December 2017, about 1,500 VWs instead of the planned about 1,800 VWs (see para. 2.16(a)) were deployed to the Kowloon West Region. The reduced number of VWs was mainly due to a reduction of 200 VW notebooks for junior police officers. Moreover, 8 of the 45 contract-specified applications had not been virtualised. System availability was 99.93% (i.e. with service interruption of 3.1 hours in three incidents) during the nursing period from December 2016 to June 2017 and 100% for the 6 months after the nursing period;
- (b) ***User feedback.*** According to a user survey conducted by the ISW in August 2017, 74.6% of the respondents rated the overall performance of VW as "average to satisfactory" and 59.1% preferred VW to physical workstation. However, the ratings on stability were not high, as only 43.5% and 58.4% of the respondents found workstation hung-up and login failure respectively "not often or never encountered". Moreover, 59.7%

Note 22: *Of the 4 variations, 3 involving product substitution due to technology advancement were approved by the Financial Controller. The remaining one involving a decrease of \$2.5 million in the contract cost due to a reduction in the number of hardware and software supplied by the contractor was approved by the GLD.*

and 88.9% of the respondents rated printing of documents and use of thumb drives respectively as “slow to very slow”;

- (c) **Observations.** Overall enhancement on IT infrastructure enabled both virtual and physical workstations to address accessibility, mobility and data security requirements. However, there were no substantial advantages resulting from VW over physical workstation under current mainstream IT options in the market. Physical workstation was more cost-effective when compared with VW especially in view of the higher annual recurrent cost (i.e. \$105 per physical workstation against \$2,700 per VW); and
- (d) **Recommendations.** Considering the higher one-off and recurrent costs, it was not cost-effective to roll out VWs to all Regions. The VWs in the Kowloon West Region would be gradually replaced by physical workstations by 2020 and the VW infrastructure would be redeployed to the HKPF’s resource centres and be retired in 2022.

After deliberation, the ICSSSC agreed with the recommendations in (d) above and requested the ISW to prepare a review report, taking into the consideration the long-term applicability of VWs in the HKPF, the merits of using VWs and the lifespan before seeking the steer of the senior management.

2.24 In May 2018, the ISW reported to the ICSSSC the review results of the VW project taking into consideration the comments received after January 2018. The meeting agreed that:

- (a) the conditions for full implementation of VWs in the HKPF were currently limited by technology and the high cost. The ISW would keep in view the latest market and technology development of VW to identify how the technology could be best applied in the HKPF before making recommendations to the ICSSSC and the HKPF’s senior management;
- (b) the Kowloon West Region would continue to use the VWs beyond 2020 as the user satisfaction level was positive based on the 2017 survey (see para. 2.23(b)) and the required recurrent cost had been budgeted in the annual departmental expenditure of the ISW; and

- (c) a full review would be conducted in six months' time to determine if it would be efficient and effective to continue with the VW project and the future applications of VWs in the HKPF would be revisited before 2025 as part of the review of the next workstation replacement cycle.

Post Implementation Departmental Return

2.25 According to OGCIO Circular No. 3/2007, for administrative computer projects funded under CWRP Head 710, bureaux and departments are required to submit a Post Implementation Departmental Return (PIDR) to OGCIO six months after operation of the ICT projects. The purpose of the PIDR is to evaluate the achievement of IT projects to ensure that the Government's investment in the projects has attained the intended objectives in a timely and cost-effective way. After examining the PIDR results (such as whether there has been a substantial deviation from the planned achievements), OGCIO will determine whether to initiate a Post Implementation Review to look into the causes of deviation and identify necessary improvements.

2.26 According to the PIDR submitted by the HKPF to OGCIO in June 2018: (i) the VW project was completed within budget and had delivered all the planned functions and benefits; (ii) although there was a delay of more than four years, the major cause was the prolonged tendering exercise; (iii) the system maintained a 100% service availability in its 6-month nursing period which ended in June 2017; and (iv) a Post Implementation Review was not required. However, Audit noted that some implementation issues which could affect the delivery of planned functions and benefits had not been fully reflected in the PIDR:

- (a) ***Delivery of planned functions.*** According to the HKPF's review of January 2018, about 1,500 VWs instead of the planned 1,800 VWs were deployed to the Kowloon West Region (see para. 2.23(a)). Moreover, 8 of the 45 contract-specified applications had not been virtualised. These system modifications and their impacts on the delivery of planned functions were not included in the PIDR;
- (b) ***Delivery of benefits.*** According to the FC funding paper of May 2010, there would be notional annual cost savings of \$20.7 million as a result of increased coverage of office automation, and reduction in staff efforts for

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performing security audits and servicing physical terminals (see para. 2.16(d)). Based on the HKPF's records, \$18.4 million of the notional annual cost savings was derived from a 1% efficiency gain (i.e. an estimated saving of 516 man-months) by the provision of 985 VWs to some 4,300 junior police officers (including 323 VWs for 2,580 officers involved in patrol duties and 662 VWs for 1,720 officers involved in crime investigation duties). With the reduction of some 200 VW notebooks (see para. 2.23(a)) for officers involved in crime investigation duties, the man-month saving for them was reduced by 62 from 206 to 144. In other words, the planned notional cost savings had not been fully achieved;

- (c) **System availability.** According to the PIDR, the system maintained a 100% service availability in its 6-month nursing period which ended in June 2017. However, according to the HKPF's review of January 2018, system availability was 99.93% (i.e. with service interruption of 3.1 hours in three incidents) during the nursing period although it was improved to 100% in the subsequent 6 months (see para. 2.23(a)); and
- (d) **Other limitations.** According to the user feedback survey, the ratings on stability were not high, as only 43.5% and 58.4% of the respondents found workstation hung-up and login failure respectively "not often or never encountered" (see para. 2.23(b)). The ICSSSC also concluded that full implementation of VWs in the HKPF was currently limited by technology and the high cost (see para. 2.24(a)).

As the aggregated result of PIDRs is published in the Controlling Officer's Report of OGCIO as government-wide performance indicators in terms of percentage of IT projects completed on schedule, within budget, meeting agreed specifications and achieving intended benefits, the HKPF needs to provide comprehensive and accurate project implementation information in PIDRs submitted to OGCIO.

Development of the Second Generation of Communal Information System

2.27 In May 2010, the HKPF obtained the FC's funding approval of \$411.27 million under Head 710 of the CWRP to replace its existing Communal Information System which had been used since 1997 to capture, maintain and process reported cases (totalling 1.4 million cases in 2009), assist in prosecution, generate

management reports for crime prevention and support traffic operation. According to the FC funding paper, the justifications for developing the CIS2 were to address the limitations of the existing system and provide new features to improve the operational efficiency of the HKPF, including the following (see details in Appendix E):

- (a) ***Limitations of existing system.*** The hardware and software maintenance contract of the existing system would expire in 2013 and could not be extended due to ageing and key components of the system were out of production. Due to limited capacity of the existing system, the HKPF had to rely on supervisory checks on case records to ensure compliance with procedural requirements; and
- (b) ***Benefits of proposed system.*** The CIS2 would consolidate seven in-house satellite IT systems and provide more sophisticated interface with systems of other departments and public entities. The anticipated benefits would include enhanced operational efficiency, enhanced crime analysis and action planning, assurance of service consistency, enhanced security control and data protection, and annual cost savings of about \$93 million.

Delay in project implementation

2.28 In June 2012, the GLD awarded a contract for the supply of the CIS2 at \$343 million (Note 23) under four phases (Note 24) with scheduled implementation date in February 2017, which was 14 months later than November 2015 stated in the FC funding paper. Moreover, during the contract stage, there were a total of 15 contract variations of which 8 involved revisions of the implementation plan (see Appendix F for a summary of the variations). As a result, the scheduled CIS2 implementation date was further extended by 31 months to August 2019. In other words, there would be a total delay of 45 months according to the latest revised implementation plan of February 2018.

Note 23: *The contract also included the provision of a 10-year maintenance and support service (including 1-year free warranty) at a total cost of \$400 million which would be funded by the HKPF controlled recurrent subhead in the GRA.*

Note 24: *The four phases comprise: (a) platform migration (Phase 0); (b) replacement of existing system functions (Phase 1); (c) implementation of e-Report Centre (Phase 2); and (d) provision of new functions (Phase 3).*

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2.29 Audit examination of the HKPF records revealed the following factors contributing to the delay:

- (a) *Longer time taken for tendering stage.* Similar to the audit findings in paragraph 2.18, the actual time taken for tender preparation was 6 months longer than originally scheduled as it involved consultation with the GLD, DoJ and Intellectual Property Department on the draft tender documents. Moreover, the tender evaluation also took longer time than expected (by 8 months) as it involved tender negotiation with the selected tenderer; and
- (b) *Extensions of implementation plan during contract stage.* In granting approval for the 13th contract variation involving acquisition of enhancement services and change in contract value in February 2017 (Note 25), the GLD Tender Board had expressed the following concerns:
 - (i) while the enhancement services were required to cater for operational requirements introduced from 2012 to 2014, it was unreasonable for the HKPF to take years to perform detailed studies and impact analysis to work out the proposed solution and seek contract variation; and
 - (ii) there had been six revisions of the implementation plan (approved under the delegated authority of the HKPF) with the completion date for replacement of the existing system functions (Phase 1 — see Note 24 to para. 2.28) extended by 22.5 months. While noting the HKPF's explanation that it had underestimated the complexity of the CIS2 and more time was required to perform collection of user requirements, analysis, design, development and testing than expected, the GLD Tender Board considered that the delay was undesirable. The Board advised the HKPF to take measures to improve project governance and expedite system development and implementation.

Note 25: *The variation involved a net reduction in contract value by \$77.5 million (i.e. an increase of \$10.8 million for the acquisition for enhancement services and a reduction of \$88.3 million for the deletion of some hardware and software items, and implementation services).*

In the event, the Executive Committee endorsed in June 2017 the further extension of Phase 1 to 31 December 2017 and the consequential extensions of Phases 2 and 3. The Financial Controller subsequently approved: (1) in July 2017 the extension of Phases 1 and 2 to December 2017 and June 2018 respectively; and (2) in February 2018 the extension of Phase 3 to August 2019 (see Appendix F).

2.30 In October 2018, the HKPF provided Audit with the following information in relation to the GLD's comments in paragraph 2.29(b) that:

- (a) the HKPF commenced processing the enhancement items after concluding the system analysis and design in November 2013. Due to the complexity of the new enhancement and the interdependency with the system, the HKPF and the contractor needed to take considerable time to conduct detailed impact analysis and agree on the cost and schedule for the enhancement items. In January 2015, the HKPF initiated the contract variation request and after obtaining the DoJ's clearance, submitted the formal contract variation request with impact analysis details to the GLD. In the following one and a half years, the HKPF responded to the GLD's questions and provided clarifications. In February 2017, the GLD Tender Board approved the contract variation; and
- (b) the HKPF stepped up governance and held two special meetings with top management of OGCIO and the contractor in April and May 2017 to determine the way forward for the roll-out of Phase 1 by the end of 2017. At its meeting held in June 2017, the Executive Committee endorsed extension of the scheduled implementation of Phases 1, 2 and 3. In the event, Phases 1 and 2 were rolled out in December 2017 and June 2018 respectively as planned.

Areas for improvement

2.31 The development of the CIS2 is to address the limitations of the existing system and provide new features to improve the operational efficiency of the HKPF. The 45-month delay in its implementation has deferred the realisation of the intended benefits (see para. 2.27(b)). Audit found that besides closely monitoring the contract progress to ensure that the latest revised implementation date of August 2019 (see

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para. 2.29(b)) is attained, the HKPF also needs to improve its contract management (see paras. 2.32 to 2.34).

2.32 *Need to closely monitor contract deliverables.* In February 2017, in response to the GLD Tender Board's enquiry on measures taken to ensure timely completion of the CIS2 project, the HKPF said that:

- (a) the contractor had injected additional manpower to carry out the contract work. The Project Team (see para. 2.2) had been restructured to streamline the development and testing process for enhancing efficiency and quality; and
- (b) weekly (or bi-weekly) checkpoint meetings had been arranged to closely monitor the progress. The CIS2 Project Management Team and Executive Committee meetings had been arranged regularly in every two/three months to report the project progress to the senior management of the HKPF.

However, Audit noted that while the CIS2 Project Management Team and the Executive Committee had each held eight meetings during 2015 and 2016, there was only one Executive Committee meeting held (on 12 June 2017) during the 14 months from June 2017 to August 2018.

2.33 In response to Audit's enquiry, the HKPF in October 2018 said that: (a) with the Executive Committee meeting held in June 2017 endorsing the extension of Phase 1 to 31 December 2017 (see para. 2.29(b)), the major project issues had been sorted out; and (b) between the Executive Committee meeting in June 2017 and the successful roll-out of Phases 1 and 2, the HKPF relied on the ISW monthly meetings chaired by the Assistant Commissioner of Police (Information Systems) and attended by the contractor's Project Director and Senior Project Manager, as well as 17 checkpoint meetings to monitor the progress. However, Audit noted that according to the project initiation document of CIS2 project (see para. 2.2), besides monitoring the project timeline, the Executive Committee would hold meetings at the end of each stage to endorse all project deliverables as well as review and approve the End Stage Assessments before issuing an acceptance certificate and arranging milestone payment to the contractor. For example, for platform migration (Phase 0 — see Note 24 to para. 2.28), the Project Team provided powerpoint presentation at a meeting of Executive Committee in August 2014 for its discussion and approval of the End Stage

Assessments before issuing an acceptance certificate and arranging a milestone payment of 10% of the contract price. As no Executive Committee meeting was held after June 2017, the Project Team only informed the Executive Committee by email in May 2018 of the completion of Phase 1 in December 2017 before issuing an acceptance certificate for a milestone payment of 40% of the contract price of \$343 million. The HKPF needs to remind the Executive Committee of an ICT project to closely monitor contract deliverables with a view to providing timely management input where necessary.

2.34 *Need to obtain prior approval of contract variations.* As shown in Appendix F, of the 8 contract variations for extending different phases of system implementation work, 6 were approved by the Financial Controller after the original end dates of the respective milestones. Similar to the audit findings in the VW contract (see para. 2.22), there is a need to remind ISW officers to obtain prior approval for contract variations.

Audit recommendations

2.35 **Audit has recommended that the Commissioner of Police should:**

- (a) **regularly review the financial position of ICT projects and report any surplus funds under relevant expenditure subheads at an earlier stage to the FSTB in accordance with Financial and Accounting Regulation 320;**
- (b) **provide sufficient information on the implementation of ICT projects in FC funding papers (such as the phased implementation approach for the radio coverage in the case of the CC3 project);**
- (c) **improve the contract specifications on desirable requirement in ICT contracts and seek legal advice where there are difficulties in applying such contract specifications;**
- (d) **make realistic assessment on ICT project implementation schedule for inclusion in FC funding papers;**

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- (e) **take measures to prevent cancellation of tender exercise, including reminding ISW officers of the SPR 350 requirements that they should word tender specifications in easily comprehensive general terms and guard against over-prescribing requirements;**
- (f) **remind ISW officers to obtain prior approval from the appropriate authority for contract variations;**
- (g) **provide comprehensive and accurate project implementation information in PIDRs submitted to OGCIO; and**
- (h) **remind the Executive Committee of an ICT project to closely monitor contract deliverables with a view to providing timely management input where necessary.**

2.36 Audit has also *recommended* that the Secretary for Financial Services and the Treasury should:

- (a) **consider the need for applying similar administrative cap/reporting requirements adopted for works projects to non-works projects under the CWRF for better monitoring of the surplus funds resulting from lower-than-estimated tender prices; and**
- (b) **introduce additional measures to strengthen the control over the use of funds resulting from lower-than-estimated tender prices in CWRF projects once surplus is identified.**

Response from the Government

2.37 The Commissioner of Police agrees with the audit recommendations in paragraph 2.35. He has said that:

- (a) **the HKPF will continue to seek improvement in the ICT project tendering, management and implementation;**

- (b) in the case of CC3 project, the extension and enhancement work items carried out after core system roll-out in 2006, including the provision of radio coverage at 59 indoor locations and at the Hong Kong International Airport, were within the project scope of the CC3 project and were essential for contributing to meeting one of the main project objectives, i.e. the provision of comprehensive radio coverage, as stated in the FC funding paper. On the basis of this interpretation, the HKPF continued to implement these items and reported the updated implementation progress to the FC and the FSTB through annual reports up to the project closure in 2015-16; and
- (c) the HKPF will strive to improve on the preparation of FC funding papers for future ICT projects so that any envisaged phased implementation plan to cater for technical uncertainties will be clearly articulated.

2.38 The Secretary for Financial Services and the Treasury accepts the audit recommendations in paragraph 2.36 to further strengthen control over the use of surplus funds in capital non-works project (i.e. administrative computer system funded under CWRP Head 710, and non-administrative computer systems and communication equipment funded under CWRP Head 708). He has said that the FSTB will implement the following measures:

- (a) for capital non-works projects approved by LegCo in the 2019-20 legislative session and thereafter, providing LegCo with quarterly reports on significant deviations between the accepted tender prices of the projects and the estimated provision in the approved project estimate when the deviations equal or exceed \$15 million or 10% of the original estimated provision, whichever is greater. The excess will be reserved administratively; and
- (b) prior to seeking the FC's approval of capital non-works projects, reminding the respective Controlling Officers of the need to observe the requirements of reporting surplus funds under Financial and Accounting Regulation 320, and the use of funds according to the approved scope and approved project estimate as stipulated in Financial Circular No. 2/2012 on "Procedures for making changes to the Estimates of the CWRP".

PART 3: PROCUREMENT OF POLICE VEHICLES

3.1 Government vehicles used primarily for the carriage of passengers and/or goods are classified as general-purpose vehicles while those mounted with ancillary equipment for performing specific functions are classified as specialised vehicles. This PART examines the procurement of police vehicles, focusing on:

- (a) replacement of general-purpose vehicles by electric vehicles (paras. 3.3 to 3.14); and
- (b) procurement of specialised vehicles (paras. 3.15 to 3.28).

3.2 Under the General Regulations, the GLD is responsible for the procedures, administration and co-ordination of the procurement of all government vehicles with the exception of certain specialised vehicles. The procurement of general-purpose vehicles for all user bureaux/departments is funded by a capital account block vote (Note 26) of the GRA under the control of the GLD. The procurement of police specialised vehicles is funded by other subheads of the capital account managed by the HKPF (see para. 3.21). From 2012-13 to 2016-17, the GLD spent \$232.5 million on procuring general-purpose vehicles for the HKPF. With the assistance of the EMSTF (Note 27), the HKPF spent \$497 million on procuring specialised vehicles over the same 5-year period. As at 1 April 2018, the HKPF had 1,249 general-purpose vehicles (e.g. medium saloon car and small motorcycle — see Photograph 1(a) and (b)) and 1,145 specialised vehicles (e.g. large van and mobile command unit — see Photograph 1(c) and (d)).

Note 26: *Unlike other capital account subheads each of which is created for funding a specific project, a capital account block vote is used to fund multiple projects.*

Note 27: *The EMSTF charges a fee for the provision of procurement service.*

Photograph 1

Examples of HKPF vehicles

Police vehicles	Main tasks
<p>(a) Medium saloon car</p> 	<p>Medium saloon cars are general-purpose vehicles mainly used for carrying out general patrol and traffic enforcement.</p>
<p>(b) Small motorcycle</p> 	<p>Small motorcycles are general-purpose vehicles mainly used for traffic enforcement and general patrol.</p>
<p>(c) Large van</p> 	<p>Large vans are specialised vehicles primarily used by the Emergency Unit. They are also used by divisions, and Police Tactical Unit as Commanders' vehicles.</p>
<p>(d) Mobile command unit</p> 	<p>Mobile command units are specialised vehicles mainly serving as mobile commands in major incidents.</p>

Source: HKPF records

Replacement of general-purpose vehicles by electric vehicles

3.3 ***Government policy.*** As part of the Government's efforts to reduce air pollutant emissions through the use of cleaner fuel, the Chief Executive of the Hong Kong Special Administrative Region (HKSAR) announced in his 2009-10 Policy Address to promote the use of electric vehicles. In the 2011-12 Budget Speech, the Financial Secretary announced that subject to the availability of suitable models in the market and the operational needs of bureaux/departments, the Government would give priority to electric vehicles when replacing government vehicles in 2011-12 and 2012-13.

3.4 ***Replacement plan of general-purpose vehicles.*** As it is the Government's policy to introduce more electric vehicles in its fleet, the GLD requested the HKPF in January 2011 to assess the HKPF's electric vehicle requirement out of its 168 vehicles due for replacement in 2011-12 and 2012-13 (Note 28). The general specifications of the electric vehicles were provided for the HKPF's reference. After consultation among police districts, the HKPF advised the GLD in February 2012 that only 139 vehicles could be replaced by electric vehicles. Accordingly, the GLD planned that 10 electric motorcycles and 13 electric saloon cars would be provided to the HKPF by end of 2012 and the remaining 59 electric motorcycles and 57 electric saloon cars in 2013.

3.5 ***HKPF's concerns.*** After reviewing its required 139 electric vehicles, the HKPF informed the GLD in May 2012 of its concerns and proposal, as follows:

- (a) the HKPF's fleet was largely operational 24 hours a day and that operational efficiency was greatly dependent on the reliability and suitability of vehicles that were fit for task. Electric vehicles were relatively new technology, in particular with regard to battery reliability and charging times, and their operational feasibility on the scale proposed had yet to be fully assessed. For a round-the-clock emergency service, these genuine operational concerns had to be properly considered given the use of electric vehicles in such a demanding context;

Note 28: In 2010, the GLD procured four small electric estate cars for the HKPF.

- (b) of the proposed 139 electric vehicles, the HKPF was unable to accept one saloon car and seven motorcycles for the following reasons:
 - (i) the saloon car was designated for use in the New Territories for crime investigation; and
 - (ii) five motorcycles were for training purpose which had to be conducted on a vehicle with manual clutch and gears not available in an electric vehicle. One police district could not accept two of the five motorcycles earmarked for them until such time as the longer-term reliability and efficiency of electric vehicles had been demonstrated; and
- (c) the HKPF would be unable to accept further electric vehicles until such time as the impact of their feasibility and operational efficiency could be fully assessed. In this connection, the HKPF would critically examine the implications of the electric vehicles on its operational efficiency.

3.6 In light of the HKPF's comments, the GLD allocated 131 (139 less 8 — see para. 3.5(b)) electric vehicles to the HKPF out of 189 electric vehicles procured under four contracts from 2011 to 2014 as shown in Table 5.

Table 5

**Procurement and allocation of electric vehicles by the GLD
(2011 to 2014)**

GLD contract	Contract sum (\$ million)	Year of vehicle delivery	Number of vehicles allocated to HKPF (Note)
Contract C for the supply of 11 electric motorcycles awarded to Contractor C in October 2011	1.47	2012	10
Contract D1 for the supply of 30 electric saloon cars awarded to Contractor D in December 2011	10.99	2012	13
Contract D2 awarded to Contractor D in November 2012 and contract variation in July 2013 for the supply of 89 electric saloon cars	32.43	2013	56
Contract E for the supply of 59 electric motorcycles awarded to Contractor E in December 2012	7.95	2014	52
Total	52.84	—	131

Source: GLD records

Note: Of the 189 electric vehicles procured, 58 were allocated to other user departments.

3.7 ***HKPF electric vehicle operational assessments.*** From September 2014 to June 2018, the HKPF conducted three assessments of its electric vehicles (Note 29). According to the assessment reports, there were various operational problems as follows:

- (a) ***First assessment results.*** The charging times were 9 to 12 hours for an electric saloon car and 4 hours for an electric motorcycle. As a result, the average vehicle availability was 65% for an electric saloon car (i.e. only for two of three shifts in a day) and 92% for an electric motorcycle (due to its lower usage and hence daily charging was not necessary). The maximum driving range was 130 kilometres for saloon cars (70% of the 185 kilometres published by the manufacturer) while that for motorcycles was commensurate with figures published by the manufacturer (128 and 72 kilometres for city driving and highway driving respectively). During the 6-month assessment period, there were 710 occasions on which the drivers found that electric vehicles were unsuitable for their trips and had to resort to combustion engine vehicles;
- (b) ***Second assessment results.*** The second assessment had similar findings to the previous one. While the driving range of an electric car was adequate for performing patrol duty in low speed city driving, the electric battery would be run out in just one shift for districts with extensive highway network. Apart from driving speed, use of air-conditioning also greatly reduced the range. This could be seen from the 37% drop in kilometres run per kilowatt-hour electricity usage in June 2015 (when air-conditioning was turned on in hot weather) in comparison with January 2016. The long charging time affected vehicle availability, as reflected in the 55% lower usage of an electric car than its non-electric counterpart of the same type. Moreover, in July 2016, an electric motorcycle caught fire during the

Note 29: *The first assessment covering the period December 2013 to May 2014 for 10 motorcycles and 69 saloon cars (allocated in 2012 and 2013) was conducted in September 2014. The second assessment covering the period July 2014 to June 2016 for three estate cars (one of the four estate cars allocated in 2010 had been taken out of service — see Note 28 to para. 3.4), 62 motorcycles and 69 saloon cars was conducted in September 2016. The third assessment covering the period July 2016 to May 2018 was conducted in June 2018. The number of vehicles covered by the third assessment was the same as that of the second assessment except for 10 of the 62 motorcycles which were retired from service during the period October 2016 to September 2017.*

charging of its battery (Note 30) and was damaged together with another electric motorcycle nearby. The fire incident raised concerns about the battery safety of the electric motorcycles. Investigations by the EMSTF and the manufacturer into the cause of the fire revealed that prolonged moisture ingress into the battery pack through the metal case caused corrosion and battery degradation, and eventually short-circuiting; and

- (c) ***Third assessment results.*** The findings were generally in line with those of the previous two assessments. The average mileage travelled by an electric saloon car and an electric motorcycle was 51 % and 67 % lower than their non-electric counterparts respectively. After the fire incident in July 2016 (see (b) above), Contractor E (see Table 5 in para. 3.6) replaced the two damaged motorcycles and agreed to replace the battery of 50 other motorcycles of the same type. The replacement work took around two years to complete during which the HKPF spent extra efforts on vehicle re-deployment. Moreover, there were also problems with the batteries of the electric saloon cars (see details in paras. 3.8 to 3.10).

Battery problems of electric saloon cars

3.8 ***Deteriorating battery performance.*** Since the third quarter of 2015, the EMSTF had found that the battery's state of health (SOH) of some electric saloon cars fell below 70% (Note 31). According to the contract terms, in the event of any defect in design, materials or workmanship in the vehicle being discovered during the warranty period, the contractor shall repair the defect and replace all defective components with new ones at no cost to the Government. Accordingly, the EMSTF requested Contractor D (see Table 5 in para. 3.6) to fix the battery problem

Note 30: *Another electric motorcycle also caught fire in mid-September 2018 while in use. By end of September 2018, the incident was still under investigation by the HKPF and the EMSTF.*

Note 31: *According to the EMSTF, the SOH of 70% indicated that the battery could only be charged to 70% of its original rated capacity after a complete full charge. A warning light in the dashboard would be activated when the SOH fell below 66% reminding the driver to return the vehicle for checking and arranging battery replacement if required. In line with the trade practice, the EMSTF used the SOH of 70% in its preventive maintenance to assess the health status of the battery of an electric vehicle.*

(Note 32). At that time, Contractor D managed to carry out battery replacement within a reasonable time (i.e. around one month). Meanwhile, the EMSTF continued to conduct SOH checks during the preventive maintenance of the electric saloon cars which was scheduled twice a year. Up to May 2018, the EMSTF had conducted SOH checks for all 68 electric saloon cars in service (Note 33) and found that 54 of them required battery replacement (Note 34).

3.9 Long time taken for battery replacement. In April 2017, the EMSTF found that the lead time for battery replacement was lengthened even after repeated reminders. At a meeting held among Contractor D, the GLD and the EMSTF in November 2017, Contractor D said that:

- (a) it could provide warranty extension for the electric saloon cars based on certain conditions and each case would be evaluated and handled individually before decisions were made;
- (b) replacement of the entire fleet was not possible as they had been used for four to five years. Courtesy vehicles (Note 35) would also not be provided because of unavailability of other electric vehicles in the market, and it was not possible to install warning lights and make other temporary modifications on the courtesy vehicles for police use; and
- (c) it had reviewed the logistics with the battery manufacturer which confirmed that the batteries could be supplied at a constant rate. However, due to limitation of storage of lithium car batteries (which were dangerous goods), it could only arrange the battery replacement at a rate of 10 units per month

Note 32: *According to the EMSTF, similar battery problems were also encountered in the electric saloon cars supplied by the contractor to other government user departments.*

Note 33: *One of the 69 electric saloon cars was damaged in a road accident in 2017.*

Note 34: *Of the 54 electric saloon cars requiring battery replacement, one was identified in the SOH check conducted by the EMSTF in 2015, 11 in 2016, 34 in 2017 and 8 in 2018 (up to May).*

Note 35: *Courtesy vehicles refer to those vehicles provided by the manufacturer or garage to car owners for temporary use while their vehicles are being maintained/repaired.*

starting from February 2018, and expected that the battery replacement work could be completed by mid-2018.

3.10 *Electric saloon cars pending battery replacement.* Subsequent to the meeting of November 2017, the GLD followed up the battery replacement progress with the EMSTF to ensure that the batteries were replaced as scheduled. The EMSTF in coordination with the HKPF continued to follow up with Contractor D. However, the battery replacement work was behind schedule due to deferment of the battery delivery (as some batteries were rejected because of quality problem). In January 2018, the GLD issued a letter reminding Contractor D of its duties under Contract D2 to repair any defect in design, materials or workmanship in the vehicles being discovered during the warranty period and to replace all defective components of the vehicles with brand new spare parts to the satisfaction of and at no cost to the Government. Up to May 2018, of the 54 electric saloon cars requiring battery replacement, only 30 (56%) had their batteries replaced. The remaining 24 (44%) were still pending battery replacement. As a result, the average waiting time for battery replacement of the 54 electric saloon cars was around 3 months per vehicle as at May 2018.

Areas for improvement

3.11 The long waiting time of the 54 electric saloon cars for battery replacement was unsatisfactory as the HKPF's deployment of vehicles was affected. As the authorised contractual authority of Contracts D1 and D2, the GLD needs to urge Contractor D to expedite action on completing the outstanding battery replacement work. In this connection, Audit noted that there were areas for improvement in the GLD's administration of the pertinent contracts:

- (a) *Need to step up monitoring of contractors' performance of their contractual duties.* According to the contract provisions: (i) Contractor D shall provide vehicle availability reports to the GLD until completion of the 3-year warranty period; (ii) in the event that a vehicle fails to meet the 95% availability due to warranty repair, the contractor shall provide for free an extended warranty period of six months for each failure of the availability threshold for all vehicles if the defect causing the failure is common to all vehicles; and (iii) the maximum aggregate extensions pursuant to multiple failures in respect of the vehicle shall be subject to a cap of 12 months for the vehicle. While Contractor D had not provided the required vehicle

availability reports, the GLD did not follow up the issue. In March 2017 and May 2018, the EMSTF provided the GLD with the raw data of warranty repair and vehicle availability records respectively. According to the EMSTF's information, 3 electric saloon cars under Contract D1 and 13 electric saloon cars under Contract D2 had failed to meet the 95% availability due to warranty repair (including battery replacement), indicating that the GLD could have claimed warranty extension for these vehicles. However, in the absence of any warranty extension claimed, the warranty of both individual vehicles and batteries under Contract D1 had expired by August and September 2015 (depending on the dates of their acceptance). On the advice of the EMSTF, the GLD refunded the relevant deposit to Contractor D in December 2015. Similarly, the warranties of vehicles and batteries under Contract D2 had expired from May to September 2016 and from May to September 2018 (Note 36) respectively. Of the 24 electric saloon cars pending battery replacement as at May 2018, 6 were covered by Contract D1 and 18 by Contract D2. In Audit's view, in light of the expiry of the warranty under Contracts D1 and D2, the GLD needs to take appropriate follow-up action to protect the Government's interest. There is also a need to step up monitoring of contractors' due performance of their contractual duties in future; and

- (b) *Need to improve the contract provisions for warranty repair.* According to the contract provisions: (i) during the warranty period, if any defect in design, materials or workmanship in the vehicles is not made good within 72 hours after the contractor has been notified of the problem, the Government may proceed to rectify the defects by repair or replacement, on its own or through a third party service provider; and (ii) all costs incurred by the Government arising from such repair or replacement shall be borne by Contractor D. However, these contract provisions cannot be invoked for repairs (such as the battery replacement of the electric saloon cars) which could only be provided by the manufacturer or its authorised dealer. The GLD needs to review and improve such contract provisions for better protecting the Government's interest in future.

Note 36: *Besides the 3-year warranty for vehicles in general similar to Contract D1, Contract D2 had an optional item which was accepted by Contractor D that the warranty for the car battery was five years. This five-year warranty was not extendable due to warranty repair.*

3.12 *Need to draw on experience gained from the use of electric vehicles in future procurement.* According to the policy direction announced by the Financial Secretary in 2011, subject to the availability of suitable models in the market and the operational needs of bureaux/departments, the Government would give priority to electric vehicles when replacing government vehicles (see para. 3.3). In light of various operational problems experienced by the HKPF in using the 131 electric vehicles (see paras. 3.7 to 3.10), the GLD needs to critically examine the availability of suitable environmental-friendly vehicles in the market that can fully meet the HKPF's operational needs when these electric vehicles are due for replacement.

Audit recommendations

3.13 **Audit has *recommended* that the Director of Government Logistics should:**

- (a) **urge Contractor D to expedite action on completing the outstanding battery replacement work for the electric saloon cars of the HKPF;**
- (b) **take appropriate follow-up action to protect the Government's interest in Contracts D1 and D2 (see para. 3.11(a)) and future similar procurement;**
- (c) **step up monitoring of contractors' due performance of their contractual duties in future (such as the submission of availability reports under Contracts D1 and D2);**
- (d) **review and improve the contract provisions for better protecting the Government's interest in case of contractors' default in carrying out warranty repair in a timely manner; and**
- (e) **critically examine the availability of suitable environmental-friendly vehicles in the market that can fully meet the HKPF's operational needs when the HKPF's electric vehicles are due for replacement.**

Response from the Government

3.14 The Director of Government Logistics generally agrees with the audit recommendations. She has said that:

- (a) the GLD had been urging Contractor D on the early replacement of batteries since November 2017 (see para. 3.10). According to the progress report provided by the EMSTF in August 2018, the remaining battery replacement work might not be completed until December 2018. The GLD had sent another letter to Contractor D in mid-September 2018 urging it to take all necessary actions to expedite the replacement exercise. As at September 2018, 14 electric saloon cars (1 under Contract D1 and 13 under Contract D2) were still pending battery replacement. The GLD will continue to closely monitor the progress and urge Contractor D to speed up the battery replacement work for the electric saloon cars of the HKPF;
- (b) for Contract D1, although the warranty for both the vehicles and batteries had expired, the GLD had urged and Contractor D had agreed to carry out the battery replacement work for vehicles at no cost to the Government. The GLD will continue to follow up the progress. For Contract D2, apart from closely monitoring the progress, the GLD will not release the contract deposit until the battery replacement program is completed and the EMSTF confirms that the performance of the replaced batteries is satisfactory;
- (c) the GLD has already stepped up the monitoring of contractors' performance. It has reminded contractors to provide the vehicle availability reports during the vehicle warranty period in accordance with the contract terms. The EMSTF has also enhanced its computer system to provide the GLD with the availability reports for verifying the reports provided by contractors;
- (d) the introduction of electric vehicles was new to the trade and the Government fleet. Given the experience of the long lead time needed to replace the batteries for the police saloon cars and that the batteries could only be provided by the manufacturer or its authorised dealer, the GLD has started a review on contract terms with the EMSTF. The review will ensure that the Government's interest can be better protected in case of contractors' default in carrying out warranty repair in a timely manner. In this respect, the GLD collected information in early September 2018 from potential

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suppliers of electric cars in the market on the lead time for the replacement of batteries; and

- (e) the GLD will continue to identify environmental-friendly vehicles to replace the HKPF's vehicles subject to the availability of suitable models in the market that can fully meet the HKPF's operational requirements.

Procurement of specialised vehicles

3.15 The HKPF's Transport Division has engaged the EMSTF in providing procurement service of specialised vehicles (see Note 27 to para. 3.2), including market research and preparation of tender documents. According to the SPRs, the EMSTF conducts tender exercise itself for procurement value not exceeding \$5 million and will seek the GLD's assistance in the tender process for procurement exceeding \$5 million.

3.16 Audit noted from the monthly progress report on procurement of specialised vehicles compiled by the HKPF's Transport Division for June 2018 that there were delays in procuring 152 specialised vehicles (137 units under 5 contracts and 15 units still in tender preparation stage) with funding approved on or before 2015-16. Audit selected a contract with delays in procuring 129 large vans for examination. The findings are shown in paragraphs 3.17 to 3.23.

3.17 ***Procurement contract of 129 large vans.*** In 2012, 2013 and 2014, the HKPF obtained funding to purchase 82, 54 and 66 (i.e. 202 in total) large vans respectively at an estimated total cost of \$150.3 million for various HKPF formations with different ancillary equipment requirements. After preparation of the tender documents for 129 of the 202 approved large vans (Note 37) by the EMSTF, the GLD arranged open tender in October 2015. In March 2016, the GLD awarded a contract (Contract F) for the supply of 129 large vans at a cost of \$69.3 million. According to the contract requirement, the 129 large vans should be delivered by two consignments, i.e. 66 and 63 by June and August 2017 respectively.

Note 37: *For the remaining 73 large vans, 71 had been procured under other contracts and only two had yet to be procured as at June 2018.*

3.18 ***Late delivery of large vans and quality problem of the delivered vans.*** In September 2017 (after expiry of the scheduled delivery date of August 2017), only 48 large vans had been delivered by the contractor. On account of the late delivery and defects identified in the delivered vans (i.e. water leakage from air-conditioning system and defects in electrical system), the EMSTF issued two warning letters to the contractor in September and November 2017. By December 2017, the EMSTF took delivery of 77 large vans and 52 were still outstanding. In late December 2017, the EMSTF, the GLD and the contractor held a meeting to review the status of eight vehicle procurement contracts awarded to the contractor, of which five had experienced delays in vehicle delivery (including Contract F with delay of some 200 days). The salient points of discussion are summarised below:

- (a) ***Late vehicle delivery.*** The contractor explained that the delay in delivering vehicles was mainly caused by bad weather problems, company's payment arrangement and poor coordination between the contractor and the overseas vehicle manufacturer/body builder. While the contractor agreed to provide revised delivery schedule after the meeting, the EMSTF reminded the contractor that the revised schedule should be realistic as it had repeatedly failed to achieve the committed schedules before; and
- (b) ***Quality problem of the delivered vehicles.*** The EMSTF said that many defects were found on both exterior and interior of the vehicles delivered. As the EMSTF had rejected many vehicles on repeated and common defects in different acceptance inspections, the contractor was required to conduct pre-delivery inspections in accordance with the contract requirement.

The EMSTF reminded the contractor at the meeting and in a subsequent letter of January 2018 that the Government reserved the right to execute the contract terms (including termination of the five overdue contracts) if there was no further improvement in contract performance and/or failure to deliver vehicles in a timely manner. According to the revised delivery schedule provided by the contractor in early January 2018, the 52 outstanding large police vans would be delivered in 4 batches, i.e. 17 in January 2018, 10 in February 2018, 13 in March 2018 and 12 in April 2018. Up to 18 September 2018, 124 (96% of 129) large police vans had been delivered under Contract F. The remaining 5 (4% of 129) large police vans were rejected by the EMSTF because of the quality issues identified in the site acceptance test.

3.19 ***Financial position of the contractor.*** In June 2018, the GLD received a letter from the legal representative of a creditor of the contractor's parent company drawing attention to its civil action against an outstanding debt. The GLD's subsequent checking with the Company Registry also revealed that the contractor had executed a floating charge in favour of another lender in April 2018. Since June 2018, the GLD in consultation with the DoJ had been taking actions to protect the Government's interest under the procurement contracts with the contractor (including Contract F). For example, in July 2018, upon the GLD's request, the contractor agreed to replace the floating charge by a new one which would not cover any vehicles and payment related to any government contract.

Areas for improvement

3.20 As shown in paragraphs 3.18 and 3.19, the repeated delays in vehicle delivery and quality problems of the delivered vehicles and more recently the financial position of the contractor have called into question its capability in the due performance of the government contracts (including Contract F). In Audit's view, the EMSTF and GLD need to take effective measures to ensure that the contractor completes the outstanding work in accordance with the contract requirements without further delay and draw lessons from this case, including the following:

- (a) ***Need to enhance site acceptance tests of specialised vehicles.*** According to the terms of Contract F: (i) upon delivery of a vehicle to the EMSTF's site, the contractor shall, at its own expense and in the presence of the Government representative, submit such vehicle to inspection and/or testing as prescribed by the Government (i.e. site acceptance tests) for a period of not more than five working days to ensure that the relevant vehicle complies with the contract requirements; and (ii) if the vehicle fails in the site acceptance tests, the Government may direct the contractor to carry out repairs, modification or replacement. Audit noted that there were reported cases of defective retractable side steps of the mid-loading doors (which were built by the contractor to suit specific operational needs of the HKPF) and cracks on front bumpers shortly after some vehicles had been put into use (e.g. 39 days for the first repair case of defective retractable side step and 8 months for the first repair case of the bumper crack). According to the EMSTF, the cracks on the front bumpers were caused by the contractor's improper method of mounting the HKPF's sign plate. After re-inspection, 124 delivered vehicles (see para. 3.18) were found requiring retrofit work. Up to 9 October 2018, the contractor completed retrofit of

retractable side steps for 124 vans and sign plates (and cracked bumpers where necessary) for 29 vans. In Audit's view, the EMSTF needs to enhance site acceptance test of similar installations of delivered vehicles in future;

- (b) ***Need to strengthen payment control.*** According to the payment terms of Contract F: (a) 30% of the contract price of an order of vehicles shall be payable upon notification by the contractor to the Government that the delivery of chassis for the vehicles has been completed and inspected; and (b) 70% of the price of each vehicle after the contractor has delivered the vehicle and provided all necessary documents (e.g. test certificates and operation manuals) and training courses (three on operation and another three on maintenance). However, the EMSTF made full payment totalling \$7.3 million for the first 14 delivered vans (after netting off liquidated damages for 6 of the 14 vans with delay in delivery in accordance with the contract terms) on 16 August 2017 when the training requirements were only partially fulfilled, i.e. the contractor only provided one operation training course on 27 July 2017. Up to May 2018, the EMSTF made payments totalling \$40 million for 81 delivered vans when the contractor had provided all three training courses on operation, but only one training course on maintenance on 25 August 2017. To prevent recurrence of similar problems, the EMSTF needs to strengthen the payment control in future; and
- (c) ***Need for adequate assurance of contractor's capability of due performance of multiple government contracts awarded.*** In accordance with SPR 362, the contractor was required to pay a 2% deposit as security for the due performance of Contract F. No financial vetting of the contractor was conducted as such requirement only applied to a service contract exceeding \$15 million or a stores contract which also requires the provision of service exceeding \$15 million under SPR 370(b)(i). However, Audit noted that from August 2015 to February 2017, the contractor was awarded eight government vehicle procurement contracts (including Contract F) for the supply of 145 vehicles for five user departments at a total sum of \$96.2 million. Given the large sum of public funds involved and the importance of timely vehicle delivery to meet various user departments' needs, it would have been prudent to obtain adequate assurance of the contractor's capability of due performance of the multiple contracts awarded (such as conducting financial vetting and/or increasing

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the amount of contract deposit). In Audit's view, the GLD needs to make improvement in this regard.

3.21 ***Funding arrangement for police specialised vehicles.*** Police specialised vehicles with unit cost within \$10 million (\$2 million prior to 1 April 2016) are funded by a capital account block vote subhead 695 of the GRA (Note 38). As a block vote supports multiple procurement contracts, there may be underspending at the year end because of delays beyond the Government's control or lead time required for the purchase. The FC has therefore approved a standard limit of over-commitment for all block votes at 50% of the approved provision so that when there are delays in some contracts, the available fund in a year can be flexibly used by expediting other contracts in the pipeline. When the block vote subhead 695 was created (Note 39) in January 2010, the HKPF considered such over-commitment arrangement inadequate for the uncertainties in procuring police specialised vehicles and made an alternative arrangement with EMSTF in December 2010 as follows:

- (a) funding for subhead 695 would be recognised and recorded as commitment and expenditure in the year when the HKPF had completed and formally passed the user specifications to the EMSTF and instructed it to go ahead with the tendering exercise; and
- (b) the EMSTF would be responsible for the timely and effective tendering process to procure the vehicles as soon as possible and it would charge the HKPF for the estimated sum for the tender within the financial year.

The FSTB was informed of the above arrangement by the HKPF in December 2010. Under the agreed arrangement, when the HKPF passed the user specifications of vehicles to the EMSTF for market research and tendering, the related funds would be transferred to the EMSTF in the related financial year. The transferred funds would be placed in the EMSTF's deposit account for subsequent payments to contractors.

Note 38: *For vehicles costing over \$10 million each (\$2 million prior to 1 April 2016), they are funded as separate items under subhead 603 of the GRA.*

Note 39: *Before creation of the block vote subhead 695 Police specialised vehicles with unit cost within \$2 million had been charged to another block vote subhead 661 Minor plant, vehicles and equipment of the GRA.*

3.22 *Unspent balance of completed procurement contracts under subhead 695.*

From 2010-11 to 2017-18, a total of \$723.1 million under subhead 695 for vehicle procurement was transferred to the EMSTF's deposit account. In April 2016, the EMSTF informed the HKPF that it would refund the unspent balance of completed procurement contracts to the HKPF. However, the HKPF disagreed with the proposed refund and suggested observing the funding approval pattern in 2016. In case partial funding was approved for the HKPF's bid, the unspent balance would be used up in a few years and hence the refund was undesirable. In July 2018, in response to the EMSTF's similar suggestion of returning the unspent balance, the HKPF maintained that all unspent balance would be kept in the deposit account for meeting future funding shortage in vehicle procurement as the proposed refund would create unnecessary hurdles in vehicle procurement (e.g. insufficient funding and delay in procurement). As of March 2018, the EMSTF had settled all the final payments for 8 completed procurement contracts funded under subhead 695 from 2010-11 to 2017-18, leaving an unspent balance of \$29.7 million in the EMSTF's deposit account.

3.23 *Need to return unspent balance of completed procurement contracts.*

According to Financial and Accounting Regulation 320, where Controlling Officers have reason to believe that funds surplus to requirements exist under a subhead, they shall immediately inform the FSTB so that the excess may be reserved. However, Audit noted that the HKPF had not reported to the FSTB the unspent balance of completed procurement contracts after having been informed of such by the EMSTF in 2016 and 2018 (similar to the audit findings in para. 2.8). In response to Audit's enquiry, the HKPF in September 2018 said that the funding arrangement for police specialised vehicles (see para. 3.21) did not mention the handling of unspent balance of completed procurement contracts. In this connection, Audit made enquiry with the FSTB in August 2018 which confirmed that the unspent balance of completed procurement contracts under subhead 695 should be returned to the Government as recovery of payment in accordance with Financial and Accounting Regulation 550. Accordingly, the HKPF returned the unspent balance of \$29.7 million to the Government in early October 2018. In Audit's view, the HKPF needs to ensure compliance with the Financial and Accounting Regulation 550 requirement in future and return any unspent balance of completed specialised vehicles procurement contracts funded under subhead 695 to the Government.

Audit recommendations

3.24 Audit has *recommended* that the Director of Electrical and Mechanical Services should:

- (a) in conjunction with the Director of Government Logistics, take effective measures to ensure that the contractor completes the outstanding work under Contract F in accordance with the contract requirements without further delay;**
- (b) enhance site acceptance tests of delivered specialised vehicles; and**
- (c) strengthen control over contract payment in future procurement of vehicles.**

3.25 Audit has also *recommended* that:

- (a) the Director of Government Logistics should obtain adequate assurance of a contractor's capability of due performance of multiple contracts awarded; and**
- (b) the Commissioner of Police should ensure compliance with the Financial and Accounting Regulation 550 requirement in future and return any unspent balance of completed specialised vehicles procurement contracts funded under subhead 695 to the Government.**

Response from the Government

3.26 The Director of Electrical and Mechanical Services agrees with the audit recommendations in paragraph 3.24.

3.27 The Director of Government Logistics generally agrees with the audit recommendation in paragraph 3.25(a). She has said that:

- (a) from a risk management perspective, bureaux/departments should make a comprehensive risk assessment, monitor contractors' performance effectively, and draw up contingency plans as appropriate;
- (b) the GLD has already kept records of contractors' performance evaluation made by bureaux/departments in the Procurement and Contract Management System database. Bureaux/departments should consider the relevant past performance records of a contractor, as appropriate, to reduce risks of default. The GLD has requested and would continue to request bureaux/departments to take measures to monitor closely the performance of contractors. Subject to bureaux/departments' comments, the GLD has incorporated/would incorporate appropriate contract terms to protect the Government's interest, such as a higher contract deposit, provision of advance payment bond for milestone payment and devising appropriate payment schedule for accepted deliverables at different contract milestones; and
- (c) under the existing procurement practice, Controlling Officers may impose a higher contract deposit for high value, mission-critical, emergency-related or health-related contracts; or contracts with high concentration risks after conducting a risk assessment, if they are satisfied that a deviation from the stipulated percentage in the SPRs is justified. To protect the interest of the Government, bureaux/departments may also include in the payment schedule a right for the Government to hold back a certain sum as retention money which will not be released to the contractor upon completion of the contract until the Government is fully satisfied, after a period of time with the goods delivered, in accordance with the SPRs.

3.28 The Commissioner of Police agrees with the audit recommendation in paragraph 3.25(b).

PART 4: PROCUREMENT OF OTHER OPERATIONAL EQUIPMENT

4.1 This PART examines the procurement of other operational equipment by the HKPF.

Government procurement policy and principles

4.2 According to the FSTB, the policy objectives of government procurement are to achieve best value for money, and maintain open and fair competition. The FSTB has laid down the principles in the SPRs for guiding Controlling Officers in conducting procurement exercises:

- (a) ***Promoting fair, competitive and open bidding.*** Competition is a reliable safeguard against bidders overcharging and holding the Government to ransom. Controlling Officers should promote competition by encouraging participation through fair and competitive procurement procedures and practices. Requirements, tender specifications and marking schemes should be drawn up in an objective manner, providing a level playing field for all to compete on an equal footing. Over-specification should be avoided. For procurements with limited competition in past exercises, Controlling Officers should explore measures to enhance competition and satisfy themselves that the tendering or consultants selection strategy to attract new bidders is effective. As far as practicable, open bidding should be adopted. Single/restricted tendering or direct appointment of consultants should be the exception and must be properly justified to the satisfaction of the relevant approving authority;
- (b) ***Securing value for money.*** Value for money embraces considerations for the economy, effectiveness and efficiency in the delivery of public service. Whilst quality is important for the procurement of certain stores and services, Controlling Officers should ensure that public funds are well spent;
- (c) ***Instituting a system of checks and balances.*** Within the departmental procurement system, there should be institutional safeguards designed with

adequate checks and balances as well as clear segregation of roles and duties; and

- (d) ***Following due process and ensuring documentation of justifications and decisions.*** Procurement decisions are subject to review by the relevant authorities. Controlling Officers should ensure that their decisions are properly justified and documented. For those procurements covered by the Agreement on Government Procurement of the World Trade Organization (Note 40), Controlling Officers shall observe the provisions therein.

4.3 ***Audit examination.*** With a view to identifying areas for improvement in the application of the procurement policy and principles laid down in the SPRs, Audit examined 10 of the 42 procurement exercises of other operational equipment by tenders from 2012-13 to 2016-17 and found areas for improvement in the following cases:

- (a) procurement of vehicle-mounted electronic counter measures system (ECMS) (paras. 4.4 to 4.11);
- (b) procurement of tactical suits (paras. 4.12 to 4.19);
- (c) procurement of combat boots and repair service (paras. 4.20 to 4.26); and
- (d) procurement of body-worn video cameras (paras. 4.27 to 4.35).

Note 40: *The Agreement applies to procurement contracts of goods and specified services of all government bureaux/departments with a value of not less than 130,000 Special Drawing Rights (equivalent to \$1.4 million for the period 1 January 2018 to 31 December 2019).*

Procurement of vehicle-mounted electronic counter measures system

4.4 In 2006-07, the Explosive Ordnance Disposal Bureau (EODB) under the Operations Wing obtained funding of \$6.2 million (Note 41) for the replacement of the aged ECMS (Note 42) which was procured in 1997 and could no longer be upgraded to meet modern threats. In the event, the new ECMS was procured in 2014 after conducting four tender exercises (see paras. 4.5 to 4.10).

4.5 *First restricted tender in 2008.* The EODB had identified the need for replacement of the ECMS before 2005 and conducted market research accordingly. In 2007, the EODB first approached the DoJ on the conduct of restricted tender for the procurement of the ECMS as this was a highly sensitive and confidential equipment involving application of new technology at that time with a number of countries requiring export licence/permission for sale. In response to the DoJ's enquiries, the EODB reiterated that open tender would result in disclosure of sensitive information with security concerns. In February 2008, the EODB noted that the procurement of the ECMS could be conducted through restricted tender. In May 2008, the GLD (see Note 3 to Table 3 in para. 1.10) invited four suppliers (Note 43) to tender for the supply of the ECMS. However, no bid was received upon close of tender in August 2008 and according to the HKPF, this was due to potential tenderers' failure to obtain export licence/permission from their respective governments. In November 2008, the tender exercise was cancelled and the GLD advised the HKPF to review and revise the tender terms and specifications with reference to the latest market information for re-tendering action.

4.6 *Second restricted tender in 2010.* After reviewing the tender specifications, the HKPF consulted the DoJ in March 2009 on conducting another restricted tender for the supply of the ECMS. From December 2008 to May 2010, the HKPF further refined the tender specifications in light of the GLD's comments.

Note 41: *The amount of funding was based on the market research conducted in 2004-05 and the experience in dealing with electronic counter measures equipment of the EODB.*

Note 42: *An ECMS is a mission critical equipment primarily used for disruption of a radio-control bomb.*

Note 43: *The suppliers were determined by the HKPF based on its market research.*

In June 2010, based on information provided by the HKPF, the GLD invited four suppliers (Note 44) to tender for the supply of the ECMS. By the close of tender in September 2010, only one tender was received.

4.7 Cancellation of the second tender exercise in 2011. After tender assessment, the EODB found that the tender complied in every respect with the tender requirements. However, the tender price far exceeded the approved funding of \$6.2 million (by 139%). In October 2010, the HKPF informed Audit that based on its contact with potential tenderers which had not submitted any bid in the 2010 tender exercise, there was no large price fluctuation during that period but the failure of obtaining the necessary export licence/permission remained. With the assistance of the GLD in obtaining a cost breakdown from the tenderer and experts from another HKPF formation in conducting a market research, the EODB assessed the reasonableness of the tender price and considered that the tender price was excessive. In December 2010, the EODB informed the GLD that additional fund was not available to cover the price offered by the conforming tenderer. With the approval of the GLD Tender Board (see Table 3 in para. 1.10), the second tender exercise was cancelled in February 2011. To avoid nugatory tendering work and public expenditure, the GLD Tender Board advised the HKPF to conduct fresh market research to update the pre-tender estimate of the ECMS and ascertain the availability of funds before mounting a new tender exercise.

4.8 Third tender exercise in 2012. Having regard to the then prevailing market price and after a critical re-assessment of the specifications, the EODB noted that the estimated project cost could be revised to \$10 million by reducing some less essential requirements in light of technological advances. With the HKPF senior management's endorsement of increasing the estimated project cost of the ECMS to \$10 million in June 2011, the EODB (upon the request of the HKPF's Financial Controller) proceeded with tender arrangement to ascertain the actual cost before formally putting up a funding request to the FSTB. In February 2012, in response to the GLD's enquiry on how the EODB had arrived at the estimated project cost of \$10 million which appeared not in line with the market situation reflected in the second tender exercise (with the tender offer exceeding \$10 million — see para. 4.7), the EODB said that:

Note 44: *Only one of the four suppliers was invited for in both the 2008 and 2010 tender exercises. The other three suppliers were only invited in the 2010 tender exercise.*

Procurement of other operational equipment

- (a) the estimated project cost of ECMS was revised to \$10 million by reducing some less essential requirements and allowing a wider range of equipment options in the tender; and
- (b) the tender price was also expected to decrease by adopting open tendering to increase competition.

In October 2018, the HKPF informed Audit that: (i) the third tender exercise in May 2012 was conducted four years after the first exercise; and (ii) the then prevailing market situation and increasing availability of the technology in the open market had led to lower prices and no longer called for the need of restricted tendering. In May 2012, the GLD arranged an open invitation to tender for the supply of ECMS. By close of tender in August 2012, three tenders were received.

4.9 ***Cancellation of the third tender exercise in 2013.*** After tender assessment in September 2012, there were only two conforming tenders. The EODB found that the tender price of one conforming tender exceeded (by 40.14%) the estimated project cost of \$10 million while that of another conforming tender was unreasonably low (99.95% below the estimated project cost). In October 2012, in response to the GLD's request for confirming its capability in performing the contract at its tendered price, the tenderer with a lower bid withdrew its offer due to an error in its tender price. In mid-January 2013, the GLD requested the tenderer with a higher bid to review its offered price. However, the reviewed price still exceeded the estimated project cost (by 33.91%). With the approval of the GLD Tender Board, the third tender exercise was cancelled in late January 2013.

4.10 ***Fourth tender exercise in 2013.*** After three unsuccessful tender exercises, the HKPF further reviewed the essential requirements and relaxed some less essential ones taking into account the latest technological advances. In October 2018, the HKPF informed Audit that by 2013, with the increasing demands for electronic counter measures technology worldwide and rapid advances in that technology, there were more suppliers in the world market that could meet the previously stringent requirements. In May 2013, the GLD arranged an open invitation to tender for the supply of ECMS. By close of tender in June 2013, two tenders were received. After tender assessment, there was only one conforming tender. In September 2013, the FSTB approved the increase of project funding from \$6.2 million to \$9.8 million. In November 2013, the GLD awarded a contract for the supply of ECMS to the

conforming tenderer at a contract sum of about \$9.32 million. In October 2014, the HKPF accepted delivery of the ECMS.

Areas for improvement

4.11 According to the EODB, the ECMS is a mission critical equipment. It is unsatisfactory that some eight years were taken to procure the system (from initial funding approval in 2006-07 to system delivery in 2014). The lengthy procurement process, in particular the repeated cancellation of tender exercises has resulted in delays in meeting the operational needs and nugatory tendering work. According to SPR 126(a), for procurements with limited competition in past exercises, Controlling Officers should explore measures to enhance competition and satisfy themselves that the tendering strategy to attract new bidders is effective. In this connection, Audit noted that there were areas for improvement in adjusting the HKPF's tendering strategy after failing to select a suitable tenderer, as follows:

- (a) ***Need to use open tender as far as practicable.*** For the first tender exercise in 2008, the HKPF used restricted tendering due to concern over disclosure of sensitive information in open tender. While no bid was received for the first tender exercise, the HKPF continued to use restricted tendering for the second tender exercise in 2010. It was not until the cancellation of the second tender exercise in 2011 that the HKPF re-assessed the open tendering option which turned out to be feasible by redrafting the tender specifications for open tendering in the subsequent tender exercise without compromising security requirements. The increase in number of bids received from one in the second tender exercise to three in the third tender exercise showed that open tendering could attract more responsive tenders. Audit notes the HKPF's view that: (i) there had been changes in circumstances, i.e. during the initial stage of the project, electronic counter measures technology was a very sensitive topic and there were difficulties in obtaining export licence/permission; and (ii) as the technology subsequently became more open and popular, there were more suppliers in the market that could meet the HKPF's stringent requirements and the third tender was changed to an open one (see para. 4.8). However, the limited number of suppliers and the difficulties in obtaining export licence/permission in the initial stage of the project should not preclude the use of open tender which in fact could help reach out to more potential suppliers. Audit understands the EODB's concern over disclosure of sensitive information in open tender. In Audit's view, the HKPF should

Procurement of other operational equipment

use open tender as far as practicable, when the security concern can be addressed (such as by redrafting the tender specifications for open tendering in the third tender exercise);

- (b) *Need to update pre-tender estimate.* The second tender exercise was held in June 2010, some 18 months after cancellation of the first tender exercise in November 2008. As the approved funding of \$6.2 million in 2006-07 was based on the pre-tender estimate prepared in 2004-05 (see Note 41 to para. 4.4), the HKPF should have ensured that the pre-tender estimate was up-to-date and adequate funding provision was available before launching a new tender in 2010; and
- (c) *Need to adopt a more flexible tender approach for less essential requirements.* After cancellation of two tender exercises, the HKPF made efforts to obtain more responsive and competitive tenders in the third tender exercise by adopting open tendering, relaxing some less essential requirements and increasing the estimated project cost to \$10 million. However, the tender price obtained still exceeded the estimated project cost. With further relaxation of the less essential requirements and the availability of more suppliers in the market due to technological advances (see para. 4.10), a suitable tenderer within the estimated project cost was selected in the fourth tender exercise. To prevent recurrence of similar problems, there is a need to adopt a more flexible tender approach for the less essential requirements which would not compromise operational capability. This can be done by specifying the less essential requirements as desirable items instead of mandatory requirements so that tenderers can choose whether or not to cover them in their tender prices. Such approach has been adopted in the procurement of HKPF vehicles and ICT systems.

Procurement of tactical suits

4.12 Tactical suits were first introduced by the HKPF in early 1990s to protect police officers from attacks during execution of their duties. In early 2016, the Police Tactical Unit (PTU) under the Operations Wing was tasked to conduct market research on the new tactical suits to replace the old ones which were considered heavy, rigid and difficult to wear.

4.13 ***Trials.*** In the second quarter of 2016, the PTU sourced five tactical suits from different suppliers for testing their overall protection, comfort and mobility after wearing. After its trial, the PTU identified one tactical suit with Material X (Note 45) as a suitable replacement for the old tactical suits. Favourable comments were also received after trials of the identified suit by other formations. In September and November 2016, the SMD procured by single quotations from the sole agent 2 batches of the tactical suits at a total cost of \$1.37 million which were delivered in September 2016 and February 2017 respectively for further trial. According to the HKPF, the trial results were positive.

4.14 ***Market research.*** In December 2016, the HKPF approved the replacement of the old tactical suits by the newly identified tactical suits at an estimated cost of \$48 million. In the same month, the PTU invited some 60 suppliers on the HKPF's supplier list to provide information (but not including price) on their products which could fulfil the HKPF's requirements. Of the six responses received, three potential suppliers indicated confidence in meeting the HKPF's requirements. However, the responding suppliers only provided catalogues and general specifications of their products without any price information. To prepare for the tendering exercise, the PTU also conducted a research of three different materials commonly used for manufacturing personal protective equipment (see para. 4.16(a)). Based on the positive feedback during trials (see para. 4.13) and findings of the above market researches, the PTU concluded that one of the materials (i.e. Material X) was the most suitable material in terms of different aspects.

4.15 ***Procurement of tactical suits in 2017.*** To meet the operational need for the 20th Anniversary of the establishment of the HKSAR in July 2017, the HKPF decided to procure a batch of tactical suits by open tendering. In January 2017, the PTU prepared the user requirements and technical specifications for the tender based on the information obtained from its market research, operational needs and experience. In view of the tight time frame, the Operations Wing obtained the Force Tender Committee's (see Table 3 in para. 1.10) approval in January 2017 to waive the HKPF's internal requirement of tender document clearance by the DoJ before tender invitation in early February 2017.

Note 45: *Upon the Security Bureau's advice, the material name and other details are not disclosed in order to minimise the risk of compromising the HKPF's operational capability.*

Procurement of other operational equipment

4.16 ***Tender recommendation.*** By the close of tender in mid-March 2017, seven tenders (with one tenderer submitting two offers) were received. After assessments by the HKPF's Tender Assessment Panel, there was only one conforming offer. In late March 2017, the Operations Wing submitted a tender report to the Force Tender Committee recommending acceptance of the conforming offer. Among others, the PTU justified the recommendation in the tender report as follows:

- (a) at the early stage of preparing the tender, the PTU conducted a research of three materials commonly used for manufacturing personal protective equipment. In response to the causing factors of injury cases, the research focused on the specific properties of these materials in providing protection for police officers. It was concluded that Material X was the only suitable material in view of its capabilities of resisting physical impact and stabbing by sharp object; and
- (b) apart from materials, the design of cushioning effect against physical impact, the weight and number of pieces of a full suit were also taken into account. The PTU conducted tests with reference to the technical specifications on the eight samples provided by the seven tenderers to project the assurance of the overall protection of the tactical suits. The recommended tender was the only offer complying with all the procedural and essential requirements in the tender document.

4.17 ***The Force Tender Committee's observations.*** In late March 2017 (after the close of tender), one Force Tender Committee member from the SMD, in preparing a report to the Committee for deliberation, asked the PTU to confirm if the tender specifications were prepared in accordance with SPR 350 which states that: (i) departments should guard against over-prescribing requirements which may favour incumbent, inhibiting competition and leading to over-reliance on a single contractor; and (ii) there shall be no requirement for a particular trade name, design or type or supplier without the words "or equivalent" included in the tender documents. In response, the PTU said that the specifications were prepared based on operational needs and experience, and could meet the government principle of maintaining open and fair competition. At its meeting held in April 2017, the Force Tender Committee approved the acceptance of the only conforming tender at a contract sum of \$4.64 million. However, the Force Tender Committee also advised the Operations Wing of its observations, as follows:

- (a) the Operations Wing's market research only gathered catalogues and general specifications from the suppliers (see para. 4.14). While three potential suppliers indicated confidence in meeting the HKPF's requirements, it turned out that there was only one conforming offer. The Operations Wing could have conducted a more thorough market research to obtain prices of tactical suits with specifications similar to the HKPF's requirements. In order to obtain competitive tenders, the Operations Wing should consider critically reviewing the technical specifications with reference to the result of this tender exercise; and
- (b) it was noted that the Operations Wing specified Material X in technical specifications for the manufacture of the required tactical suits. The Operations Wing should consider using descriptions such as "Material X or equivalent" instead of specifying a particular material in describing its requirements.

In June 2017, the HKPF took delivery of the tactical suits. In August 2018, the HKPF promulgated the Force Tender Committee's above observations for reference by all members of the HKPF.

4.18 ***Preparation for another procurement exercise.*** In August 2017, in light of the Force Tender Committee's advice, the PTU commissioned a local university to assess which of the three common materials for manufacturing personal protective equipment could offer the best protection. According to the assessment report which was based on the published physical properties of these three materials, Material X was the most suitable material for personal protective equipment. In April 2018, the HKPF conducted another tender exercise for the supply of tactical suits. As at the end of audit fieldwork in August 2018, tender evaluation was in progress.

Areas for improvement

4.19 Besides the observations of the Force Tender Committee (see para. 4.17), Audit noted that there were other areas for improvement in the HKPF's tender arrangements of the procurement of tactical suits in 2017, as follows:

- (a) ***Need to seek early clarification with users on tender specifications.*** In approving the waiving of the requirement of tender document clearance by the DoJ in January 2017, the Force Tender Committee said that it trusted

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the professionalism of the SMD and that the DoJ's advice could be sought when there was any problem. Based on the tender specifications provided by the PTU in December 2016, the SMD prepared the tender documents in January 2017, during which time the SMD did not raise any question on the tender specifications relating to their compliance with the SPRs. However, in late March 2017 (after the close of tender), the SMD member of the Force Tender Committee asked the PTU to confirm if the tender specifications were prepared in accordance with the SPR 350 requirement (see para. 4.17). In response, the PTU said that the specifications were prepared based on operational needs and experience, and could meet the government principle of maintaining open and fair competition. In Audit's view, the SMD needs to seek early clarifications with users on matters concerning the compliance of tender specifications with the SPRs before invitation of tenders; and

- (b) *Need to prepare strong justifications for using material specifications in a timely manner.* The Operations Wing specified Material X in the technical specifications for the manufacture of the required tactical suits. According to Appendix III(F) of the SPRs, the use of material specifications might limit innovative solutions or new technologies or products which tenderers might be able to offer, and restrict competition. In preparing tender specifications, departments should use functional and performance specifications, supplementing them by a material or technical specification only if absolutely necessary. While the PTU had conducted its own research to show that Material X was the most suitable material in terms of different aspects (see para. 4.14), it was not until August 2017 (after award of the contract) that the PTU commissioned a local university to confirm the suitability of using Material X for the tactical suits (see para. 4.18). In Audit's view, there is a need to remind procuring staff to prepare strong justifications for using material specifications in a timely manner (see para. 4.2 (d)).

Procurement of combat boots and repair service

4.20 *Combat boots replacement exercise.* Combat boots are used by police officers in carrying out their law enforcement duties. In January 2008, it was decided to phase out the old combat boots, which had been used for over 20 years, by a model which met all international safety standards and with better protection. The

replacement programme was approved by the Security Bureau. The HKPF estimated that it would take 4 years to replace the boots by new ones.

4.21 ***Sole detachment problem.*** In November 2012 and August 2013, the SMD received staff complaints that rubber soles of some combat boots peeled off easily. After investigation by the boot supplier, it was found that the adhesive of the defective boots which were manufactured in 2009 and 2010 had aged because of long time storage (Note 46). To ensure the quality of some 3,923 pairs of combat boots still in stock, the Financial Controller of the HKPF approved in March 2014 inviting the supplier by single quotation to provide repair service by two stages:

- (a) initially for 2,918 pairs of boots to meet the consumption need for the next 12 months so as to avoid the recurrence of sole detachment problems due to prolonged storage; and
- (b) for the remaining 1,005 pairs of boots if the quality of the repair was found to be satisfactory.

4.22 ***Repair services in 2014 and 2015.*** In April 2014, the HKPF awarded a contract to the supplier for repairing the 2,918 pairs of combat boots at a total cost of \$1.4 million. According to the correspondence between the SMD and the supplier before the award of contract in April 2014, the repair service consisted of peeling off the outsoles, adhering and fixing the outsoles to the boots. In June 2014, all the repaired combat boots were delivered to the HKPF. In August 2014, the HKPF informed the supplier that the outsole of one pair of repaired boots peeled off again. After fixing the problem by the supplier, there was no further report of sole detachment problem. In August 2015, the HKPF awarded another contract to the supplier for repairing 1,005 pairs of combat boots at a total cost of \$0.6 million. In December 2015, all the repaired combat boots were delivered to the HKPF. According to the contracts, the supplier provided a warranty against faulty workmanship and faulty materials for a period of at least twelve months.

4.23 ***Recurrence of sole detachment problem.*** In mid-2016, a user formation reported that some repaired combat boots experienced sole detachment. The number

Note 46: *In 2016, the supplier advised the HKPF that the boots had a shelf life of 3 years from delivery date.*

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of reported defective boots increased from 40 in October 2016 to 64 in November 2016 and all of them were repaired in 2014. From September to October 2016, the HKPF held several meetings with the supplier to discuss the issue. The HKPF was informed by the supplier at these meetings that during the repair process in 2014, some 200 pairs of boots were found intact in which the outsoles could not be detached for repair purpose. In order not to damage the boots, machine stitching around the forefoot parts was used to reinforce the sole bond strength instead. As a remedial measure, the supplier proposed to provide additional stitch to 599 pairs of the 2014 repaired boots in the HKPF's stock. However, the HKPF rejected the proposed remedial measure having regard to an expert's advice that when the adhesion of the boots had decayed, adding stitches to the soles was not recommended as the thread would quickly deteriorate in wear. As for the 2015 repaired boots, the supplier arranged laboratory tests of 15 random samples in November 2016 and all of them passed the required tests.

4.24 ***Negotiation.*** In November 2016, the supplier offered to: (i) replace 300 pairs of the 2014 repaired boots by new ones without admitting liability nor performing consignment tests; or (ii) repair the 599 pairs of boots again at its cost using the outsole detachment and replacement method, and then conduct laboratory testing of 15 samples to prove the bond strength. In December 2016, the HKPF informed the supplier that both options were not acceptable because:

- (a) during the course of 2014 repair, the outsoles of the boots had been detached and replaced. Further detachment under the repair option would damage the structure of the boots and make them less durable; and
- (b) as the repair method used was ineffective and had caused the sole detachment problem which would pose a high risk to users, the supplier should replace all 599 pairs of boots and provide a consignment test report to ensure that they would be safe to wear.

In its reply of December 2016, the supplier said that: (1) its proposed repair method was effective as shown by the laboratory test results of 15 samples of the 2015 repaired boots (see para. 4.23); and (2) while the HKPF's request for replacing 599 pairs of boots together with a consignment test report was not supported by the contract terms, the supplier made an offer to replace 300 pairs of boots out of goodwill.

4.25 After consulting the DoJ, in May 2017, the HKPF noted that there was no contractual provision to claim replacement for the 599 pairs of repaired boots because: (a) the required repair method was not stipulated in the contract; (b) the act of paying the supplier indicated that the repaired boots had been accepted by the HKPF; (c) negotiations with the supplier regarding the sole detachments of the boots did not commence until September 2016 when the 12-month warranty period for the repair service of the boots had already lapsed; and (d) the contract document had not incorporated the standard terms and conditions for tendering of government services issued by the GLD which provide that a contractor shall indemnify the Government against any injury to any government employees arising out of the negligence of the contractor. In the event, the HKPF accepted the supplier's offer of replacing 300 pairs of repaired boots with new ones. To address the occupational and safety concern of police officers, the HKPF disposed of the remaining 299 (599 less 300) pairs of repaired boots in August 2017.

Areas for improvement

4.26 Combat boots are used by police officers in carrying out their law enforcement duties. It was unsatisfactory that some 3,923 pairs of new combat boots procured at a total cost of \$2.92 million had to be repaired at a cost of \$2 million due to prolonged storage (see (b) below) and that the sole detachment problem still occurred in 64 pairs of repaired boots (see paras. 4.22 and 4.23). In Audit's view, the HKPF needs to take measures to prevent recurrence of similar problems, including the following:

- (a) ***Need to improve the contract provision.*** In light of the difficulties to claim replacement of the 599 pairs of repaired boots (see para. 4.24), the HKPF needs to improve the preparation of contract documents to ensure that all essential requirements (such as the required quality of the repair service in this case) are properly incorporated in future. There is also a need to include key provisions to protect the Government's interest (such as those requiring a contractor to indemnify the Government against any injury to any government employees arising out of the negligence of the contractor); and
- (b) ***Need to improve stock management to prevent prolonged storage.*** In examining the circumstances leading to the prolonged storage of combat boots, Audit found that there was room for improvement in the HKPF's stock management. In 2008, the HKPF obtained the Security Bureau's

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approval to phase out the old combat boots which had been used for over 20 years and did not meet all international safety standards. Having regard to the stock level of 2,029 pairs of boots in February 2008 and its estimate that the stock could only last for 10 months, the HKPF conducted 5 procurement exercises from 2008 to 2012 for the supply of a total of 16,960 pairs of new boots. According to the HKPF's records, as at 31 March 2014 (the date of approval of the repair service by the Financial Controller — see para. 4.21), there were 4,199 pairs of new boots in stock, i.e. 12,761 of the 16,960 pairs of procured boots had been issued. As shown in Table 6, the fact that 924 pairs of boots of the last procurement exercise had been issued to police officers while 3,923 pairs of boots purchased in the preceding four procurement exercises were still in stock as at March 2014, suggested that the first-in-first-out method for managing stock had not been adopted to prevent prolonged storage of boots with a shelf life of 3 years after delivery (see Note 46 to para. 4.21). The HKPF needs to make improvement in this regard.

Table 6

Procurement and issue of new combat boots (2008 to December 2013)

Tender/ quotation issue date	Delivery date	Boots procured (Pair) (a)	Boots issued (Pair) (b)	Boots in stock as at 31 March 2014 (Pair) (a) - (b)
April 2008	August 2008	660	11,837	3,923
May 2008	February to May 2009	6,600		
August 2009	April 2010	1,900		
January 2010	September 2010 to March 2011	6,600		
November 2012	January to December 2013	1,200	924	276
Total		16,960	12,761	4,199

Source: Audit analysis of HKPF records

Procurement of body-worn video cameras

4.27 The HKPF had been using hand-held video recording devices since 2006 to record incidents with law and order implications for both investigation and evidential purposes. To facilitate frontline police officers in collecting evidence and handling confrontation, the HKPF introduced body-worn video cameras (BWVCs — see Photograph 2) in 2013 in view of their small size, convenience and ease of use.

Photograph 2

BWVC



Source: HKPF records

4.28 **Field trial.** The HKPF conducted two stages of field trial of BWVCs from March 2013 to July 2015 (Note 47). According to the HKPF evaluation report of November 2015, the use of BWVCs had successfully strengthened operational efficiency by assisting frontline officers in evidence gathering. From 2015 to 2017, the HKPF purchased 1,336 BWVCs at a total cost of \$4.81 million (see Table 7).

Note 47: During the 6-month first stage field trial from March to September 2013, 50 BWVCs were used. For the 12-month second stage field trial from June 2014 to July 2015, 324 BWVCs were used.

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Table 7

Procurement of BWVCs (2015 to 2017)

Procurement method	Quantity	Amount (\$ million)	Date of procurement request	Tender/quotation issue date (Close date)	Delivery date
Open tender (Contract G awarded in March 2016)	550	1.98	26/1/2015	4/9/2015 (20/10/2015)	24/5/2016
Variation to Contract G	390	1.40	23/3/2016	1/9/2016 (variation order date)	26/10/2016
Quotation 1	124	0.45	18/11/2016	23/12/2016 (6/1/2017)	24/1/2017 & 3/2/2017
Quotation 2	272	0.98	27/2/2017	24/3/2017 (19/4/2017)	22/5/2017

Source: HKPF records

4.29 **Procurement of 550 BWVCs by open tender.** In 2015-16, the HKPF obtained funding approval of \$4.5 million for the Support Wing to procure additional BWVCs. In September 2015, the HKPF invited tenders for the supply of 550 BWVCs (based on an estimate of \$2.75 million for BWVCs with one-year free warranty and \$1.75 million for 5-year maintenance service after the warranty period) for further trials. By close of tender in October 2015, six tender offers were received. In accordance with tender terms, the HKPF invited tenderers which passed the initial completeness check on procedural requirements to conduct demonstration of their products' compliance with the technical requirements. Due to the lengthy demonstration process, the tender validity period had to be extended from February to May 2016. After completion of tender assessment by the Tender Assessment Panel, there was only one conforming tender. In March 2016, with the Force Tender Committee's approval, the HKPF awarded Contract G to the only

conforming tenderer for the supply of 550 BWVCs at a contract sum of \$1.98 million (Note 48). In May 2016, the HKPF took delivery of the 550 BWVCs.

4.30 ***The Force Tender Committee's observations.*** When approving the award of Contract G in March 2016, the Force Tender Committee drew the Support Wing's attention to the following issues:

- (a) ***Completeness check.*** Based on the initial completeness check, the Support Wing invited a tenderer to conduct demonstration of its product but only realised at a later stage that the tenderer had not properly signed the tender document. After consulting the DoJ, the Support Wing noted that the tender was an invalid one and could not be considered further. Such handling was undesirable as it might give rise to complaints from tenderers for giving them false hope and a wastage of their efforts in preparing the demonstration. The Support Wing should exercise due care in conducting completeness check to identify any irregularities before proceeding further with tender evaluation in future;
- (b) ***Use of test certificates in lieu of product demonstration.*** It was noted that the product demonstration process had taken quite some time (i.e. requiring the extension of tender validity period by 3 months — see para. 4.29). The Support Wing should review whether acceptance of test certificates from accredited laboratories would be a more accurate and objective measure, whilst saving resources and time for both the procuring formation and tenderers; and
- (c) ***Market survey.*** The tender document specified that the expected life span of the offered goods should not be less than six years, failing which the tender would not be considered further. One of the tenderers indicated that while its product was intended to meet such requirement, it reserved the right to replace the faulty unit with an equivalent model in case it was unable to supply the spare parts or components due to obsolescence beyond its reasonable control. The Support Wing should conduct thorough market surveys to sort out the reasonable expected life spans for goods of similar

Note 48: *According to the Support Wing, the maintenance service (which was included as an optional item in the tender) was not awarded to the successful tenderer because the technology was changing fast and replacement by new BWVCs might turn out to be a cheaper option than the maintenance service.*

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nature and take note of technological advancement of the goods before including a long period of maintenance service requirement.

In August 2016, the HKPF promulgated the Force Tender Committee's above observations for reference by all members of the HKPF.

4.31 ***Procurement of 390 BWVCs by a variation to Contract G.*** In March 2016, the HKPF considered that there was an urgent need to procure more BWVCs. As a new round of tender exercise would take at least six months, the HKPF explored the option of procuring 390 BWVCs through a variation to Contract G. After consulting the DoJ that the terms of Contract G might be varied by the contracting parties by a subsequent agreement and that the variation would not be covered by the Agreement on Government Procurement of the World Trade Organization, the HKPF ordered an additional 390 BWVCs at a total cost of \$1.4 million through a contract variation in September 2016. In October 2016, the HKPF took delivery of the 390 BWVCs.

4.32 ***Procurement of 124 BWVCs by quotation in 2016.*** In November 2016 after a public order event, one of the HKPF formations requested the Support Wing to provide more BWVCs because police officers might be deployed in small units and the confrontation situation faced by one officer might not be sufficiently captured by the camera of another officer. Having regard to the remaining balance of the approved fund of \$4.5 million for procuring BWVCs after the two rounds of procurement under Contract G (see paras. 4.29 and 4.31), the Support Wing sought the SMD's assistance to procure an additional 124 BWVCs by quotation. In December 2016, the SMD invited eight suppliers to quote. By close of quotation in early January 2017, only two suppliers had submitted offers. After assessment of the quotations, there was only one conforming offer. In mid-January 2017, the HKPF awarded a contract for the supply of 124 BWVCs to the only conforming supplier at a sum of \$0.45 million. The HKPF took delivery of the 124 BWVCs in January and February 2017.

4.33 ***Procurement of 272 BWVCs by quotation in 2017.*** In February 2017, the Support Wing reviewed the distribution of the BWVCs and considered that there was a need to procure additional 432 BWVCs to cater for operational needs, i.e. 368 sets for the Anniversary of the HKSAR in July 2017 and the remaining 64 sets in the fourth quarter of 2017 to align with passing out of police officers. Subsequently, the Support Wing changed its plan to procuring some 1,640 sets by four separate quotation exercises to expedite procurement process. After consulting the SMD, the

Support Wing noted that its procurement plan would deviate from the SPR 246 requirement that “departments may only make repeated purchases of the same items within 12 months if the cumulative value of the purchases does not exceed the quotation limit (\$1.43 million)”. Given that some 124 BWVCs had been purchased by quotation in December 2016 (see para. 4.32), the Support Wing noted that at most only 273 BWVCs (at \$0.98 million) could be purchased by a second quotation before December 2017. In February 2017, the Support Wing obtained the HKPF senior management’s endorsement to procure 271 (subsequently increased to 272) BWVCs by quotation to meet the operational need arising from the Anniversary of the HKSAR in July 2017 and 1,370 BWVCs by a separate tender exercise. In late March 2017, the SMD invited quotation from six suppliers for the supply of 272 BWVCs. By close of quotation on 19 April 2017, only one supplier submitted an offer. In April 2017, the HKPF awarded a contract to the only conforming supplier at a sum of \$0.98 million. In May 2017, the HKPF took delivery of the 272 BWVCs.

Areas for improvement

4.34 While the two purchases of BWVCs by quotations in December 2016 and March 2017 (within a time span of about 4 months) not exceeding \$1.43 million in total have not deviated from the SPR 246 requirement (see para. 4.33), Audit noted that there was room for improvement in the HKPF procurement planning. According to SPR 205, in making procurement, Controlling Officers should consolidate requirements of stores or services of similar nature as far as possible to achieve better economy of scale. As the Anniversary of the HKSAR is an annual event, the operational need for 272 BWVCs in July 2017 (covered by the second purchase in March 2017) could have been foreseen and consolidated with the first purchase in December 2016 to achieve economy of scale. In this connection, Audit also noted that there was limited competition in the two purchases, i.e. only two offers and one offer for the first and second purchases respectively.

4.35 In light of the finding in paragraph 4.34, Audit conducted further sample checking of the SMD’s procurement by quotation with value exceeding \$50,000 (see Table 3 in para. 1.10) from 2015-16 to 2017-18. According to the SMD’s records, there were a total of 1,316 purchases by quotation with value exceeding \$50,000. Audit selected 190 such purchases for examination and found that there were areas for improvement as follows:

Procurement of other operational equipment

- (a) ***Need to make greater efforts to meet the SPR 246 requirement.*** Of the 190 purchases, 33 (17%) were related to repeated purchases of 13 items within 12 months. The cumulative value of the purchases for each item exceeded the then quotation limit of \$1.43 million (see Note 2 to Table 3 in para. 1.10), contrary to the SPR 246 requirement. However, Audit found that there were documented reasons for not following the SPR 246 requirement for only 6 of the 13 items. In response to Audit's enquiry, the HKPF provided Audit with explanations for the remaining 7 items in October 2018. For 5 of these 7 items, Audit considers that the HKPF needs to make greater efforts to comply with the SPR 246 requirement (see Appendix G). The HKPF also needs to remind staff concerned to always document the reasons when such requirement could not be followed (see para. 4.2(d)); and
- (b) ***Need to consolidate procurement requirements to achieve better economy of scale.*** Another 47 (25%) of the 190 purchases were related to the repeated purchases of 19 items of same or similar nature. As the cumulative value of the purchases for each of these 19 items did not exceed \$1.43 million within 12 months, there was no breach with the SPR 246 requirement. However, as required by SPR 205, Controlling Officers should consolidate requirements of stores or services of similar nature as far as possible to achieve better economy of scale. Audit noted that for 14 of the 19 items, there were records to show that the repeated purchases were occasioned by urgent operational needs or other operational reasons (e.g. normal procurement after trial purchase). However, for the remaining 5 items (see Appendix H), there appears to be scope for bundling the repeated purchases. Audit notes the HKPF's concern that bundling could lead to overstocking especially for items with specified shelf life. In Audit's view, the problem of overstocking can be addressed by arranging delivery of the ordered items by batches at appropriate time intervals. In the case of purchase of roadblock traffic lights (see item 1 of Appendix H), the SMD invited quotation on 17 July 2017 for the supply of 120 traffic lights and 220 beacons. During evaluation of the submitted quotations, the SMD noted that the contract value would be \$928,900, which together with \$789,000 incurred for the previous purchase in March 2017 would exceed \$1.43 million within 12 months. In the event, the SMD reduced the order quantity from 120 to 80 traffic lights and from 220 to 160 beacons so as to reduce the contract value to \$631,200 and hence the cumulative purchase value to within \$1.43 million. The HKPF needs to remind procuring staff to observe the SPR 205 requirements on strictly interpreting the financial

limits for procurement by tenders/quotations as far as possible and not dividing procurement requirements into instalments to avoid exceeding the financial limits.

Audit recommendations

4.36 **Audit has *recommended* that the Commissioner of Police should:**

- (a) **use open tender for procurement as far as practicable, and in case of sensitive equipment, endeavour to draft tender specifications for open tender without compromising security requirements;**
- (b) **update pre-tender estimate with reference to the latest market information and ensure that adequate funding provision is available before launching a new tender;**
- (c) **adopt a more flexible tender approach for less essential requirements which would not compromise operational capability (e.g. specifying them as desirable items instead of mandatory requirements);**
- (d) **remind SMD staff to seek early clarification with users on matters concerning compliance with relevant SPR requirements before launching a tender;**
- (e) **remind procuring staff to prepare strong justifications for using material specifications in a timely manner;**
- (f) **improve the preparation of contract documents to ensure that all the essential requirements and key provisions to protect the Government's interest are properly included;**
- (g) **improve stock management to prevent prolonged storage of goods taking into account their shelf lives;**
- (h) **make greater efforts to meet the SPR 246 requirement (such as adopting bulk purchase of regularly required items to obviate the need for repeated purchases within 12 months which would exceed the**

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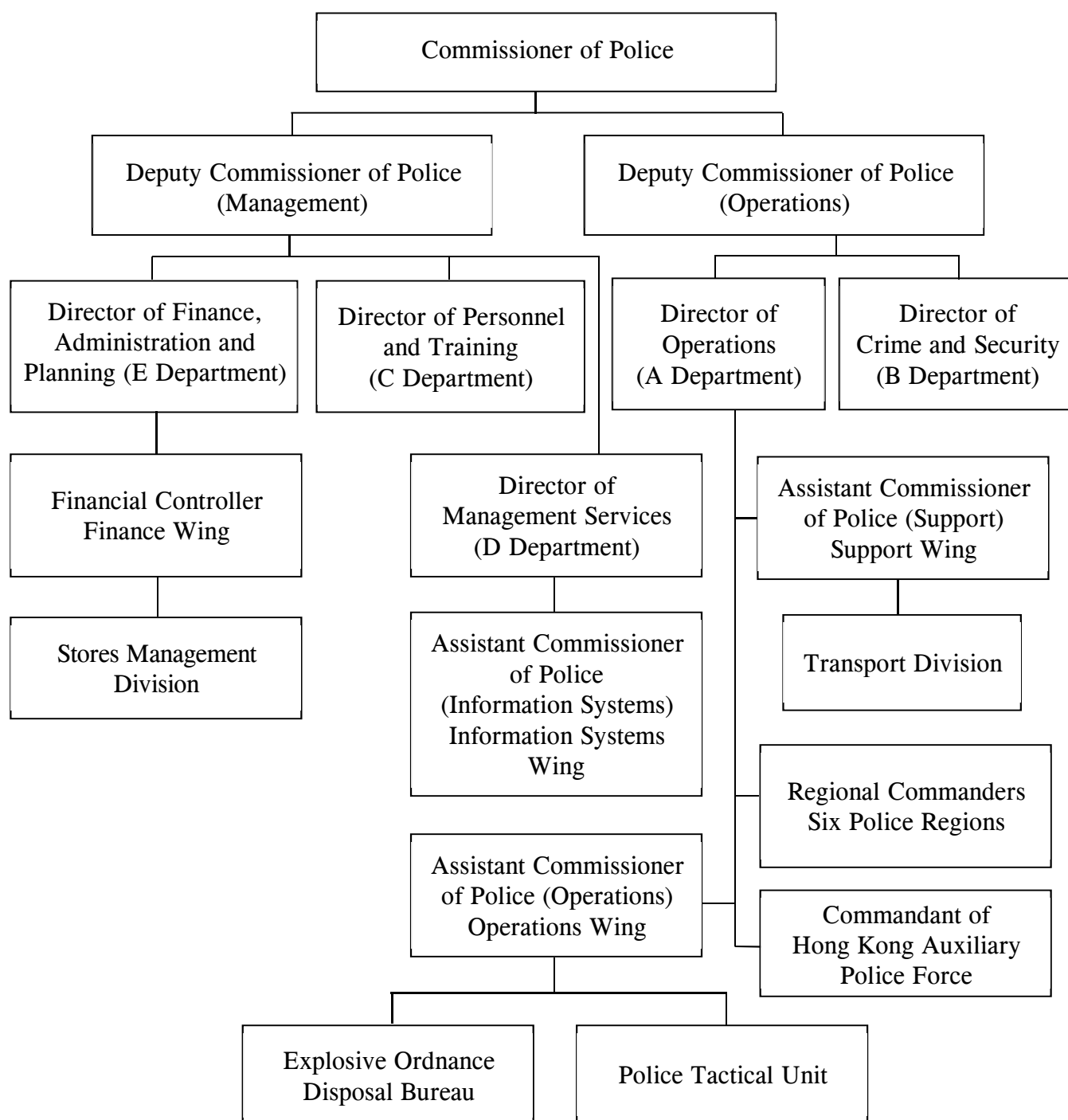
stipulated financial limit) and remind officers concerned to always document the reasons when such requirement could not be followed;

- (i) arrange purchase in bulk as far as practicable to achieve better economy of scale; and
- (j) remind procuring staff to observe SPR 205 requirements on strictly interpreting the financial limits for procurements by tenders/quotations and not dividing procurement requirements into instalments to avoid the financial limits.

Response from the Government

4.37 The Commissioner of Police agrees with the audit recommendations. He has said that the HKPF will continue to seek improvement in the procurement process, stock management and documentation, and to enhance the training for staff involved in procurement functions.

**Hong Kong Police Force:
Organisation chart (extract)
(30 June 2018)**



Source: HKPF records

Remarks: Only the wings, divisions and units mentioned in this Report are shown.

Appendix B
(para. 2.3 refers)

Major information and communications technology projects with delays in implementation reported to Finance Committee in 2016-17 and 2017-18

Item	Project name	FC funding approval date	Approved project estimate (\$ million)	Scheduled completion date per FC funding paper	System implementation date
1	Replacement of command and control communications system for the Operations Department	June 2001	948.00	August 2005	March 2006 (system roll-out) with extension and enhancement work completed by February 2016
2	Development of the Third Generation of Major Incident Investigation and Disaster Support System	June 2008	43.98	September 2011	January 2016 (system roll-out)
3	Enhancement of the IT infrastructure by using virtual workstation (initial implementation)	May 2010	40.72	June 2012	June 2017 (system roll-out)
4	Development of the Second Generation of Communal Information System	May 2010	411.27	November 2015	January 2018 (as reported in November 2017 but subsequently revised to August 2019 in March 2018)
5	Replacement of Digital Radar Security System for the Marine Region	May 2013	39.79	December 2016	March 2018 (as reported in November 2017 but subsequently revised to July 2018 in March 2018)

Source: HKPF and LegCo records

Appendix C
(paras. 2.7, 2.12 and
2.14 refer)

**Extension and enhancement work for the
Third Generation Command and Control Communications System
approved by the Executive Committee**

Extension and enhancement work		Executive Committee approval date	Approved estimates (\$ million)	Actual expenditure (as at March 2016) (\$ million)
(A) 10 work items approved before CC3 system roll-out in March 2006:				
1	Entrustment work of west rail radio antenna infrastructure to railway operator	Sep 2004	5.50	5.50
2	Uninterrupted power supply improvements and commissioning of disaster recovery centre	Oct 2004	3.07	3.07
3	Interim solution for radio coverage for 53 railway stations	Dec 2004	8.30	8.30
4	EMSTF equipment installation work on police vehicles	Apr 2005	20.21	14.05
5	Replacement of air handling unit for common equipment room	Apr 2005	0.80	0.80
6	Enhancement of video capability	Jun 2005	2.00	2.00
7	Railway central site equipment	Sep 2005	0.72	0.72
8	Phase 3 roll-out schedule change	Sep 2005	0.82	0.22
9	Beat and mobile radio equipment for Tin Shui Wai and Traffic New Territories North Region	Jan 2006	1.29	1.29
10	Radio terminals for Lok Ma Chau	Feb 2006	0.38	0.38
<i>Subtotal</i>			43.09	36.33
(B) 33 work items approved after CC3 system roll-out in March 2006:				
11	Migration of regional surveillance support sections radio system	Jul 2006	29.36	29.36
12	Migration of Traffic Radio System	Jul 2006	38.93	5.50
13	Communications Branch manpower resources (Note 1)	Jul 2006	0.74	0.74
14	Security seal for portable radios	Nov 2006	0.28	0.28
15	Communications Branch manpower resources (Note 1)	Jul 2007	1.08	1.08

Appendix C
(Cont'd)
(paras. 2.7, 2.12 and
2.14 refer)

Extension and enhancement work		Executive Committee approval date	Approved estimates (\$ million)	Actual expenditure (as at March 2016) (\$ million)
16	Radio coverage to railway extensions	Jul 2007	0.50	0.50
17	Professional services of EMSTF (48 man-months) (Note 1)	Jun 2008	6.00	6.00
18	Extension of radio coverage to Hong Kong International Airport	Jun 2008	81.42	38.11
19	Extension of radio coverage to 59 selected indoor locations	Jun 2008	94.30	22.74
20	Dual capability headsets for RCCC	May 2009	0.26	0.26
21	Replacement of two communication controllers for the interface between CACCS3 and registration of persons system	May 2009	0.79	0.79
22	CACCS3 remote access	May 2009	0.68	0.68
23	Technical study	May 2009	10.93	10.93
24	Earpieces for Police Tactical Unit	May 2009	7.89	4.73
25	ICS mobile switch office expansion	May 2009	24.86	13.17
26	Professional services of EMSTF (48 man-months) (Note 1)	May 2010	6.00	6.00
27	ICT bids for portables	May 2010	2.37	2.24
28	Reconfiguration of microwave infrastructure	Aug 2010	6.74	2.49
29	Professional services of EMSTF (36 man-months) (Note 1)	Aug 2012	4.50	4.50
30	Additional base station and antenna system for Sai Ying Pun and Wan Chai Areas	Sep 2012	2.46	2.34
31	Decommissioning of obsolete radio system	Sep 2012	3.18	1.89
32	Interface between CACCS3 and registration of persons system	Sep 2012	2.00	2.00
33	Services for decommissioning Second Generation Command and Control Communications System	Sep 2012	0.18	0.18
34	Additional provision for technical study on CACCS3 and ETS	Sep 2012	0.57	0.54

Appendix C
(Cont'd)
(paras. 2.7, 2.12 and
2.14 refer)

Extension and enhancement work		Executive Committee approval date	Approved estimates (\$ million)	Actual expenditure (as at March 2016) (\$ million)
35	Procurement of radios and accessories	Nov 2012	4.50	3.74
36	Enhancement of CACCS3 servers and network switches	Nov 2012	18.00	17.91
37	Procurement of radios for sea-going divisions	May 2013	1.01	0.69
38	Professional services of EMSTF (24 man-months) (Note 1)	Sep 2013	3.00	2.08
39	Enhancement of ETS call processing and distribution sub-systems	Jul 2014	25.61	23.80
40	ICS enhancement	Jul 2014	60.00	58.88
41	Trial on radio terminal	Jul 2014	9.00	0.00 (Note 2)
42	Enhancement of CACCS3 servers, workstations and notebooks	Jul 2014	21.50	21.41
43	Resilience enhancement of digital data network multiplexer	Jul 2015	0.08	0.08
<i>Subtotal</i>			468.72	285.64
Total [(A) + (B)]			511.81 (Say 512)	321.97 (Say 322)

Source: HKPF records

Note 1: According to the HKPF, items 13, 15, 17, 26, 29 and 38 (totalling \$20.4 million) were expenditure for engaging contract staff and EMSTF professional staff to manage project development work, such as planning, designing and monitoring on the activities of the extension of radio coverage.

Note 2: According to the HKPF, this item was not implemented.

Anticipated benefits and cost savings/avoidance of the Virtual Workstation project

1. *Anticipated benefits of the VW project.* According to the FC funding paper of May 2010, the VW project would bring the following major anticipated benefits:

- (a) *Increased accessibility.* The number of computer terminals (including frontline terminals and diskless notebooks) in Kowloon West Region would be increased from about 1,100 by more than 60% to around 1,800 after the initial implementation of the infrastructure enhancement. Accessibility would be greatly enhanced with the increased number of frontline terminals and notebooks with secured processing and storage environment at the server end;
- (b) *Enhanced operational efficiency and mobility.* The operational efficiency would be greatly enhanced through the increased provision of frontline terminals, and individual processing and storage compartment at the central server. Case-related and general office documents could be prepared more efficiently and in a timelier manner. The officers' operational mobility would also improve as they could readily access the information stored at the central server within or outside their offices. With urgent deployment of the VWs, mobile computing facilities or command posts for major events and ad hoc incidents could also be set up within a much shorter time;
- (c) *Enhanced data security and confidentiality.* With the proposed VW infrastructure in place, all information/documents under processing would only reside at the secured data storage compartments in data centres. As no data would be transferred or downloaded to the frontline terminals, officers would in general not be able to carry data on any external storage device. Furthermore, each officer could gain access to only his own storage compartment in the data centres with an authentication mechanism. As a result, information confidentiality could be ensured and data leakage risk would be mitigated;
- (d) *Central desktop management and deployment.* Desktop virtualisation would remove the dependency on a specific local terminal configuration. With the consolidated IT infrastructure, administration of servers, user access control and application change control (e.g. upgrade of software) could be performed centrally in the data centres. As no data would be stored locally, the use of VW would also

- minimise the need for on-site maintenance of hardware and simplify the procedure for workstation disposal and replacement;
- (e) ***Higher service availability.*** With the provision of dual site infrastructure in the long run, sharing of loading between the computer resources in the two data centres would be possible and mutual backup could be done to ensure availability and resilience. It could protect against planned downtime in the event of scheduled maintenance, and provide resilience in spite of hardware and software failure. Furthermore, in case of failure of frontline terminals, end users could continue to work by simply replacing the failed terminals; and
 - (f) ***Better utilisation of resources.*** With the provision of a secured VW infrastructure, users could access their own VWs from any frontline terminal and it would not be necessary to provide each disciplined officer with a designated frontline terminal. In addition, the infrastructure could allocate suitable computing resources to active and inactive users for better utilisation of the resources.
2. ***Cost savings/avoidance.*** According to the FC funding paper of May 2010, the VW project was estimated to bring about annual savings of about \$21 million from 2013-14 onwards, comprising:
- (a) ***Realisable savings of \$89,000 per annum.*** These would be savings from the maintenance cost of the existing servers and personal computers;
 - (b) ***Notional savings of \$20.7 million per annum.*** With the increased provision of frontline terminals and enhanced functions of the IT infrastructure, notional savings in staff effort would be achieved through increased coverage of office automation and reduction in staff effort for performing security and formation audits on the systems and terminals, inspecting software installed in local computers, updating anti-virus, and supervising computer repair works; and
 - (c) ***Cost avoidance of \$702,000 per annum.*** The cost avoidance would arise mainly from avoidance of the replacement of desktop terminals in the seven years from 2013-14 to 2019-20.

Source: HKPF records

Anticipated benefits and cost savings/avoidance of the Second Generation of Communal Information System project

1. ***Anticipated benefits of the CIS2 project.*** According to the FC funding paper of May 2010, the CIS2 project would bring the following major anticipated benefits:

- (a) ***Enhanced operation efficiency.*** The CIS2 would enable parallel processing of arrested persons involved in the same case, trail of detainees and property movements as well as compilation of management and crime reports. These enhanced features would promote the HKPF's efficiency in daily operations and performance of more in-depth crime trend and pattern analysis;
- (b) ***Enhanced crime analysis and action planning.*** The CIS2 would have linkages with internal systems as well as standardised case data definition. With the support of intelligence tools, the new system would enable timely and accurate retrieval of case data by different functions to meet the HKPF's operational needs. The CIS2 could therefore facilitate crime analysis, manpower planning for major incidents/events, as well as planning for anti-crime and traffic management operations and fight-crime campaigns;
- (c) ***Assurance of service consistency and quality.*** The CIS2 would adopt a "procedure-driven" concept by using technology solutions to automate business processes. Frontline officers would need to follow step-by-step procedures in the system when handling arrested persons, found properties and summons. This new feature would both promote consistency and strengthen supervision;
- (d) ***Enhanced security control and data protection.*** The CIS2 would enhance security control on data protection and strengthen integrity management by introducing a multiple-factor authentication mechanism and an audit trail measure for access; and
- (e) ***Expanded service channels for public.*** The CIS2 would provide for the establishment of an e-Report Centre which would offer customer-centric Internet reporting service to the public for non-emergency incidents such as loss of property. There would be no need for the public to visit local police stations for these incidents. In addition, the e-Report Centre would act as a centralised Call Centre with a dedicated phone number for receiving information from the public on cases of public interest. The Call Centre would also answer phone calls overflowed from busy Report Rooms.

2. **Cost savings/avoidance.** According to the FC funding paper of May 2010, the CIS2 project was estimated to bring about annual savings of about \$93 million from 2016-17 onwards, comprising:

- (a) **Realisable savings of \$11 million per annum.** These would be savings from the maintenance cost of the existing Communal Information System;
- (b) **Notional savings of \$60 million per annum.** The notional savings would be achieved through more efficient administration of property items by the Property Offices of police stations, and reduction in the time spent on handling arrested persons in Report Rooms and case coding work for crime analysis in District Intelligence Sections; and
- (c) **Cost avoidance of \$22 million per annum.** The cost avoidance represented the recurrent expenses for a revamped Communal Information System (i.e. replacement of hardware and software without enhancement of system functions of the current Communal Information System).

In addition, there would be a one-off cost avoidance of \$220 million for developing a revamped Communal Information System.

Source: HKPF records

Appendix F
(paras. 2.28, 2.29
and 2.34 refer)

**Contract variations approved for the
Second Generation of Communal Information System project
(March 2018)**

Item	Variation details	Date of approval (Note 1)
1	Replacement of key staff (Project Manager, Lead System Analysts and Technical Manager)	25.7.2012
2	Replacement of key staff (System Architect)	12.10.2012
3	Extension of the System Analysis and Design Stage by 4.5 months from 12.7.2013 to 29.11.2013	4.12.2013 (Note 2)
4	Extension of implementation of Phase 0 Stage by 4.5 months from 13.12.2013 to 30.4.2014	11.3.2014 (Note 2)
5	Extension of implementation of Phase 0 Stage by 2 months from 30.4.2014 to 30.6.2014	18.7.2014 (Note 2)
6	Substitution of some hardware and software items	18.8.2014
7	Replacement of key staff (Lead System Analyst 2)	26.11.2014
8	Extension of implementation of Phase 1 Stage by 5 months from 11.9.2015 to 15.2.2016	13.3.2015
9	Substitution of some hardware items	9.10.2015
10	Replacement of key staff (Senior Project Manager)	1.12.2015
11	Extension of implementation of Phase 1 Stage by 9.5 months from 15.2.2016 to 30.11.2016	18.4.2016 (Note 2)
12	Extension of implementation of Phases 1, 2 and 3 by 8, 14.5 and 11.5 months from 30.11.2016 to 31.7.2017, 13.9.2016 to 30.11.2017 and 13.2.2017 to 31.1.2018 respectively	29.11.2016 (Note 2)
13	Provision of implementation services for enhanced items and the deletion of some hardware, software items and implementation services	15.2.2017
14	Extension of implementation of Phases 1 and 2 by 5 and 7 months from 31.7.2017 to 31.12.2017 and from 30.11.2017 to 30.6.2018 respectively	26.7.2017
15	Extension of implementation of Phase 3 by 19 months from 31.1.2018 to 31.8.2019	1.2.2018 (Note 2)

Source: HKPF records

Note 1: With the exception of items 1, 2 and 13 which were approved by the GLD (see para. 2.22), all other contract variations were approved by the Financial Controller of the HKPF.

Note 2: The Financial Controller's covering approval of six contract variations for extending different phases of system implementation work was only sought after the original end dates of the respective milestones.

**Repeated purchases of same items by quotations
with cumulative value exceeding \$1.43 million within 12 months
(2015-16 to 2017-18)**

Item	Quotation issue date	Contract value (\$)	Duration between quotations (months)	Cumulative value (\$)	Remarks
1. Gloves protective carbon G. black, wrist length for traffic police (winter)	23/1/2015	607,230	5.9	1,642,580	<p>Explanation provided by HKPF: Due to heavy demand for these gloves (personal protective items for public order events) by frontline police officers during major public order events between the end of 2014 and mid-2015, urgent replenishment of stock was required.</p> <p>Audit comment: Audit noted that in October 2015, the HKPF's Uniform and Accoutrements Committee approved: (a) the change of the then existing model of winter traffic protective gloves for the traffic police; and (b) the distribution of the existing stock of gloves to frontline officers for public order events. In other words, the demand for such gloves for frontline police officers only arose in October 2015 after the two purchases in January and July 2015. There is a need to remind officers concerned of the SPR 246 requirement.</p>
	22/7/2015	1,035,350			

Appendix G
(Cont'd)
(para. 4.35(a) refers)

Item	Quotation issue date	Contract value (\$)	Duration between quotations (months)	Cumulative value (\$)	Remarks
2. Cloth material (shirts)	20/5/2015	849,687	9.0	1,903,687	<p>Explanation provided by HKPF: The first quotation exercise was delayed due to heavy workload for major public order events. Due to significant increase in consumption during public order events, urgent replenishment of stock was required through the second quotation.</p> <p>Audit comment: This item appears to be regularly required and its requirements could have been foreseen. The HKPF needs to explore the feasibility of bulk purchase by tender to obviate the need for repeated purchases within 12 months which would exceed the financial limit of SPR 246.</p>
	18/2/2016	1,054,000			
3. Cloth material (trousers — summer and winter)	19/5/2015	614,940	9.0	1,483,940	<p>Explanation provided by HKPF: Same as the justifications provided for item 2 (cloth material (shirts))</p> <p>Audit comment: This item appears to be regularly required and its requirements could have been foreseen. The HKPF needs to explore the feasibility of bulk purchase by tender to obviate the need for repeated purchases within 12 months which would exceed the financial limit of SPR 246.</p>
	18/2/2016	869,000			

Appendix G
(Cont'd)
(para. 4.35(a) refers)

Item	Quotation issue date	Contract value (\$)	Duration between quotations (months)	Cumulative value (\$)	Remarks
4. Shoes running — trainee	13/5/2015	1,310,400	11.0	2,730,000	<p>Explanation provided by HKPF:</p> <p>The first quotation exercise was delayed due to heavy workload for major public order events. The second and third quotations were normal stock replenishment.</p> <p>Audit comment:</p> <p>This item appears to be regularly required and its requirements could have been foreseen. The HKPF needs to explore the feasibility of bulk purchase by tender to obviate the need for repeated purchases within 12 months which would exceed the financial limit of SPR 246.</p>
	11/4/2016	1,419,600			
	29/3/2017	1,428,800	11.6	2,848,400	
5. Mouthpieces for alcohol screen device	30/12/2015	817,000	11.7	1,534,500	<p>Explanation provided by HKPF:</p> <p>Due to the upsurge in consumption, urgent replenishment of stock was required.</p> <p>Audit comment:</p> <p>This item appears to be regularly required and its requirements could have been foreseen. The HKPF needs to explore the feasibility of bulk purchase by tender to obviate the need for repeated purchases within 12 months which would exceed the financial limit of SPR 246.</p>
	25/8/2016	610,900			
	20/12/2016	106,600			

Source: Audit analysis of HKPF records

**Repeated purchases of goods
of same or similar nature by quotations
(2015-16 to 2017-18)**

Item	Description	Quotation issue date	Contract value (\$)	Duration between quotations (months)	Cumulative value (\$)
1	Roadblock traffic lights	12/7/2016	545,000	7.6	1,334,000
		1/3/2017	789,000		
		17/7/2017	631,200	4.5	1,420,200
2	Bullet resistant vests	23/9/2015	821,880	9.9	1,415,460
		19/7/2016	593,580		
		19/1/2017	821,880	6.0	1,415,460
3	Black leather shoes, CMS-mounted with horseshoes and studs	3/3/2016	1,122,500	12.6	2,514,400
		22/3/2017	1,391,900		
4	CC3 batteries	30/9/2015	1,351,945	13.2	2,736,880
		4/11/2016	1,384,935		
		15/11/2017	1,408,120	12.4	2,793,055
5	Cloth material (shirts)	18/2/2016	1,054,000	13.0	1,930,680
		20/3/2017	876,680		

Source: Audit analysis of HKPF records

Acronyms and abbreviations

Audit	Audit Commission
BWVCs	Body-worn video cameras
CACCS3	Computer-assisted Command and Control System
CC3 system	Third Generation Command and Control Communications System
CIS2	Second Generation of Communal Information System
CWRF	Capital Works Reserve Fund
DoJ	Department of Justice
ECMS	Vehicle-mounted electronic counter measures system
EMSTF	Electrical and Mechanical Services Trading Fund
EODB	Explosive Ordnance Disposal Bureau
ETS	Emergency Telephone System
FC	Finance Committee
FSTB	Financial Services and the Treasury Bureau
GLD	Government Logistics Department
GRA	General Revenue Account
HKPF	Hong Kong Police Force
HKSAR	Hong Kong Special Administrative Region
ICS	Integrated Communications System
ICSSSC	Information and Communications Systems Strategy Steering Committee
ICT	Information and communications technology
ISW	Information Systems Wing
IT	Information technology
LegCo	Legislative Council
OGCIO	Office of the Government Chief Information Officer
PIDR	Post Implementation Departmental Return
PTU	Police Tactical Unit
RCCC	Regional Command and Control Centre
SMD	Stores Management Division
SOH	State of health
SPRs	Stores and Procurement Regulations
VW	Virtual workstation