

## **ITEM FOR FINANCE COMMITTEE**

### **CAPITAL WORKS RESERVE FUND**

#### **Correctional Services Department**

#### **HEAD 708 – CAPITAL SUBVENTIONS AND MAJOR SYSTEMS AND EQUIPMENT**

**New Subhead “Installation of Electric Locks Security System in Stanley Prison”**

**New Subhead “Replacement and Enhancement of the Closed Circuit Television Systems for Pak Sha Wan Correctional Institution and Siu Lam Psychiatric Centre”**

#### **HEAD 710 – COMPUTERISATION**

**New Subhead “Replacement of Core Information Technology Systems with the Integrated Custodial and Rehabilitation Management System”**

Members are invited to approve three new commitments for the Correctional Services Department –

- (a) \$765,400,000 for installation of electric locks security system in Stanley Prison;
- (b) \$51,546,000 for replacement and enhancement of the closed circuit television systems for Pak Sha Wan Correctional Institution and Siu Lam Psychiatric Centre; and
- (c) \$352,754,000 for replacement of core information technology systems with the Integrated Custodial and Rehabilitation Management System in the Correctional Services Department.

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**PROBLEM**

Correctional Services Department needs to enhance its security-related equipment at several correctional services institutions and to implement an integrated custodial and rehabilitation management system for strengthening the security and operational efficiency of the institutions.

**PROPOSAL**

2. The Commissioner of Correctional Services, on the advice of the Director of Electrical and Mechanical Services and the Government Chief Information Officer as appropriate, and with the support of the Secretary for Security, proposes to –

- (a) install an electric locks security system in Stanley Prison at an estimated cost of \$765,400,000;
- (b) replace the analogue closed circuit television systems at Pak Sha Wan Correctional Institution and Siu Lam Psychiatric Centre with new enhanced digital systems at an estimated cost of \$51,546,000; and
- (c) replace core information technology systems with the Integrated Custodial and Rehabilitation Management System at an estimated cost of \$352,754,000.

3. Details of the above projects and the financial implications are at Enclosures 1 to 3.

Encls. 1-3

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Security Bureau  
April 2016

**Installation of Electric Locks Security System (ELSS) in Stanley Prison  
(\$765,400,000)**

ELSS is an electro-mechanical locking system operating in conjunction with closed circuit television (CCTV) cameras, intercoms and call buttons. Upon the pressing of a call button by the staff of the Correctional Services Department (CSD) to request for the unlocking of a gate operated under ELSS, visual and audio signals will be transmitted to the control room immediately. On receipt of such a request, the staff in the control room will unlock the relevant gate by remote control after verifying the identity of the requesting staff through the intercom and CCTV system.

**JUSTIFICATION**

**Need for Installation of ELSS**

2. CSD proposes to install ELSS at Stanley Prison to replace the old system of manually-operated locks, on the following grounds –

*(a) Speeding up emergency support*

For security reasons, all keys of the gates with manually-operated mechanical locks are kept in specific locations which are relatively far away from the custodial areas of persons in custody (PICs). In case of emergency (particularly during night time as PICs are more likely to attempt self-harm at those hours), it will take a relatively long time for CSD staff to collect the keys from the concerned locations and then rush to the scene to unlock the relevant gates.

With ELSS in place, the locking/unlocking of gates will be centrally processed and controlled from the control room. According to standard procedures, the staff at the scene will only need to press the call button and the staff at the control room can unlock the gates almost instantly upon checking. This can save the time required for staff to rush to the scene for any necessary rescue and support actions in the event of emergency.

*(b) Strengthening institutional security*

Upon implementation of ELSS, the staff at the control room can unlock the gates only upon verification of the identity of the

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requesting staff. Therefore, the system can help prevent any improper or unauthorised unlocking of gates, hence further enhancing institutional security. The security system will automatically keep records of each and every locking/unlocking time and other relevant details. The information generated from the system can also facilitate the analysis or review of the operation of the institution for improving operational efficiency. As a maximum security prison, Stanley Prison has a pressing operational need for installing ELSS.

(c) *Enhancing operational efficiency*

Upon implementation of ELSS, complicated and extensive procedures of safe keeping, collection, return and distribution of keys can be eliminated, thereby enhancing the operational efficiency of the institution.

### **Proposal for Installation of ELSS**

3. The proposed ELSS will be installed mainly in the passageways, cells and facilities in Stanley Prison. The installation works will be carried out by the Electrical and Mechanical Services Trading Fund (EMSTF). The works will include modification of server rooms and installation of about 2 300 gates with electric locks, electro-mechanical locking devices, server and associated parts, about 5 000 CCTV cameras, uninterrupted power supply system, charging devices and other minor parts.

### **FINANCIAL IMPLICATIONS**

#### **Capital Expenditure**

4. The estimated total capital cost of installing ELSS will be \$765,400,000. The detailed breakdown is as follows –

	<b>\$'000</b>
(a) Security system	400,000
(b) Builder and building services works	226,500
(c) Builder and building services consultancy	15,800
(d) EMSTF project management services	60,400
(e) Contingencies (10% of (a) and (b))	62,700
<b>Total</b>	<b>765,400</b>

5. On paragraph 4(a) above, the estimated expenditure of \$400 million is for the procurement of the electric locks, electro-mechanical locking devices, server and associated parts, CCTV cameras, uninterrupted power supply system, charging devices and other minor parts.

6. On paragraph 4(b) above, the estimated expenditure of \$226.50 million is for the provision or modification of around 60 Local Equipment Rooms, installation and modification of relevant gates and grille partition, and associated builders works.

7. On paragraph 4(c) above, the estimated expenditure of \$15.80 million is for the hiring of consultancy services for builder and building services works.

8. On paragraph 4(d) above, the estimated expenditure of \$60.40 million is for the payment of EMSTF project management services, which include preparation of tender documents, tender evaluation, approval of contractor's design submissions, monitoring of contractor's installation, acceptance tests, and co-ordination with various government departments and the contractors.

9. On paragraph 4(e) above, the estimated expenditure of \$62.70 million represents about 10% contingency on the items set out in paragraph 4(a) and (b).

10. It is estimated that the cash flow requirement for the proposed installation will be as follows –

<b>Financial Year</b>	<b>\$'000</b>
2016 – 17	8,500
2017 – 18	16,300
2018 – 19	71,900
2019 – 20	168,200
2020 – 21	160,500
2021 – 22	139,200
2022 – 23	79,600
2023 – 24	96,600
2024 – 25	24,600
<b>Total</b>	<b>765,400</b>

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## **Recurrent Expenditure**

11. It is estimated that the additional annual recurrent cost after implementing ELSS, including expenses on corrective maintenance, equipment spare parts and tariff, will be around \$38.10 million. CSD will absorb the requirement with its own resources.

## **IMPLEMENTATION PLAN**

12. Subject to Finance Committee (FC)'s approval, we plan to implement the proposed project according to the following schedule –

<b>Activity</b>	<b>Target Completion Date</b>
(a) Engagement of builder/building services consultant	December 2016
(b) Project planning, system design/tender preparation	October 2017
(c) Tendering and award of contract	March 2018
(d) Approval of system design	June 2018
(e) Manufacturing of equipment, delivery and site work preparation	September 2018
(f) Installation and building services works	April 2024
(g) Acceptance test and training	August 2024
(h) System commissioning	October 2024

13. The above schedule was drawn up with reference to CSD's previous experience and EMSTF's advice. As Stanley Prison was built over 70 years ago, the project will involve associated builders' works required for structural checking and strengthening for installation of ELSS at aged structures. It is therefore necessary to engage a separate builder/building services consultant to carry out the structural safety inspection beforehand, and to provide the expertise advice on the builder and structural works for the design, enhancement and replacement of the gates and the installation of electric lock which is embedded in the concrete partition wall at around 2 300 locations. Furthermore, as the works will be carried out while the operation of the institution continues, the structural works and installation have to be carefully managed. To expedite the project,

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installation and modification works will be carried out by phases with several areas being worked upon concurrently. During the installation period, CSD will ensure that the operation of the Stanley Prison will not be affected.

## **PUBLIC CONSULTATION**

14. We consulted the Legislative Council Panel on Security on the above proposal on 5 January 2016. Members supported the proposal and its submission to the FC for funding approval.

## **BACKGROUND**

15. CSD is committed to providing a secure, safe, humane, decent and healthy environment for PICs. Most of the correctional facilities in Hong Kong were either aged or converted from buildings originally used for other purposes. Currently, the gates used in correctional institutions are mainly installed with manually-operated mechanical locks, meaning that those gates have to be locked or unlocked by keys manually. These manual operations involve complicated and extensive procedures of safe keeping, collection, return and distribution of keys. Moreover, the manual locking or unlocking processes are relatively time-consuming.

16. To address the problems associated with the locking/unlocking processes of the old system of manually-operated mechanical locks, CSD completed a study in 2012 and decided to replace the existing locks with ELSS in various institutions by phases in accordance with the respective security and actual operational need.

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**Replacement and Enhancement of the Closed Circuit Television (CCTV)  
Systems for Pak Sha Wan Correctional Institution (PSWCI)  
and Siu Lam Psychiatric Centre (SLPC)  
(\$51,546,000)**

CSD proposes to replace the existing analogue CCTV systems at PSWCI and SLPC with new enhanced digital systems. The proposal involves the installation of approximately 900 high resolution cameras to cover the institutional areas in PSWCI and SLPC (except offices and specific areas such as shower rooms, toilets and sick bays). With the introduction of CCTV systems with video analytical function at security sensitive locations such as restricted areas, the level of security in these areas will be further enhanced. Each system will also be installed with a server, video storage system, network equipment and uninterrupted power supply.

**JUSTIFICATION**

2. CSD proposes to fully replace and enhance the CCTV systems at PSWCI and SLPC for the following reasons –

- (a) *Enhancing the system configuration and improving the quality and storage of video recordings*

The existing systems and cameras of PSWCI and SLPC have been in operation for a long time. They cannot meet the standards of modern technology. For example, the resolution of the cameras is low and the video recordings are not clear enough; the image quality of stored images fades with time; the image refreshes at a comparatively slow rate such that the video is unable to be played smoothly; and the recordings can only be retained for 14 days owing to the limited video storage capacity. At the end of 2012, the Coroner's Court recommended that without intruding into personal privacy, CSD should enhance the coverage of CCTV system within the areas of correctional institutions, improve the image resolution and introduce the use of coloured images<sup>1</sup>. Furthermore, during the investigation of another case, the Office of the Ombudsman also recommended that

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<sup>1</sup> In an inquest into the death of a person in custody, the Coroner's Court commented that the video recordings made by the CCTV at correctional institutions were not clear enough due to their low resolution and the coverage was not sufficiently extensive.



CSD should retain the video recordings for not less than 30 days<sup>2</sup>.

CSD proposes to install new CCTV systems at the two correctional institutions to provide better images with higher resolution and the video recordings which will be clear enough for facial identification of the person(s) captured therein. Moreover, the recordings can be retained for up to 31 days<sup>3</sup> and the design of open digital CCTV system will be adopted. Recording and storage mechanisms will be standardised and re-configurable to suit the latest operational standards and changing operational needs. The automation features in the new systems can enhance the operational efficiency.

(b) *Rectifying the maintenance problems arising from the ageing system*

As advised by the Electrical and Mechanical Services Trading Fund, the normal service life of the existing analogue CCTV systems is eight to ten years for CCTV cameras and around six years for video storage systems. The analogue CCTV systems in PSWCI and SLPC have been operating for over 17 and 14 years respectively. Breakdowns and repairs of cameras, video storage systems and other components have been adversely affecting the operation and security of the two institutions.

Following the replacement of the systems, the frequency of system malfunctioning due to the ageing problem can be reduced. Moreover, the new open systems will meet the international industry standards of more cost-effective maintenance services.

(c) *Extending the system coverage and efficiency in surveillance*

Since the existing CCTV systems at PSWCI and SLPC can only cover part of the institutions, their coverage is considered inadequate.

Taking into account the recommendation of the Coroner's Court mentioned at paragraph 2(a) above, the proposed procurement of the new CCTV systems will cover all areas accessible by persons in custody (PICs) (except toilets, shower rooms and sick bays etc.)

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<sup>2</sup> In the investigation into a complaint, the Office of The Ombudsman commented that the 14-day retention period for audio or video recording was not adequate and recommended that CSD should review its procedural guideline on retention and disposal of files and records.

<sup>3</sup> Regarding the retention of the CCTV data, CSD has made reference to the practice adopted by the Hong Kong Police Force in retaining CCTV data obtained at police stations and also the standards stipulated in the guidelines provided by the police of the United Kingdom for users of CCTV systems. In deciding on the retention period of 31 days, CSD has given due consideration of the recommendation made by the Office of The Ombudsman with regard to retaining the recordings for not less than 30 days.

so as to enhance the effectiveness of surveillance. Moreover, in security sensitive areas (such as areas in the proximity of the protective walls of SLPC and perimeter fence of PSWCI), the sub-systems installed will be equipped with video analytical function. Any intruding objects close to human body temperature in these areas will be identified by the systems which will then generate alert messages for operating staff to take contingency measures. This will further enhance the level of security in restricted areas.

## FINANCIAL IMPLICATIONS

### Capital Expenditure

3. The estimated total capital cost of replacing and enhancing the CCTV systems at PSWCI and SLPC will be \$51,546,000. The detailed breakdown is as follows –

	<b>\$'000</b>
(a) Builders and building services works for server & control rooms	12,576
(b) CCTV cameras	9,240
(c) Control and surveillance system	5,390
(d) Video storage system	4,060
(e) Network and cabling system	4,280
(f) Infrastructure and associated building services	5,330
(g) Electrical and Mechanical Services Trading Fund (EMSTF) project management services	6,570
(h) Contingencies (10% of (a) to (f))	4,100
<b>Total</b>	<b>51,546</b>

4. On paragraph 3(a) above, the estimated expenditure of \$12.58 million is for the builders and building services works for the provision and modification of server rooms and existing control rooms.

5. On paragraph 3(b) above, the estimated expenditure of \$9.24 million is for the procurement of about 900 sets of CCTV cameras, and some of them being equipped with video analytical function.

6. On paragraph 3(c) above, the estimated expenditure of \$5.39 million is for the procurement of workstation computers, display panels and video management sub-systems.

7. On paragraph 3(d) above, the estimated expenditure of \$4.06 million is for the procurement of a video storage system for the project.

8. On paragraph 3(e) above, the estimated expenditure of \$4.28 million is for the procurement of network equipment, such as core switches, edge switches, network supporting unit, and the carrying out of the associated cabling and builders' works.

9. On paragraph 3(f) above, the estimated expenditure of \$5.33 million is for the procurement of support infrastructure facilities and building services works.

10. On paragraph 3(g) above, the estimated expenditure of \$6.57 million is for the payment of EMSTF project management services which include preparation of tender documents, tender evaluation, approval of contractor's design submissions, monitoring of contractor's installation, acceptance tests, and co-ordination of work between various government departments and the contractor.

11. On paragraph 3(h) above, the estimated expenditure of \$4.10 million represents about 10% contingency on the items set out in paragraph 3(a) to (f).

12. It is estimated that the cash flow requirement for replacing and enhancing the systems will be as follows –

<b>Financial year</b>	<b>\$'000</b>
2016 – 17	2,685
2017 – 18	3,497
2018 – 19	4,097
2019 – 20	16,691
2020 – 21	24,576
<b>Total</b>	<b>51,546</b>

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## **Recurrent Expenditure**

13. It is estimated that after the new CCTV systems are put into use in PSWCI and SLPC, the relevant annual recurrent cost (including expenses on maintenance, equipment spare parts and electricity tariffs etc.) will be around \$4.61 million. CSD will absorb the requirement within its own resources.

## **IMPLEMENTATION PLAN**

14. Subject to Finance Committee (FC)'s approval, we plan to implement the proposed project according to the following schedule –

	<b>Activity</b>	<b>Target Completion Date</b>
(a)	Project planning, system design/tender preparation	April 2017
(b)	Tendering and award of contract	October 2017
(c)	Approval of system design	January 2018
(d)	Manufacturing of equipment, delivery and site work preparation	July 2018
(e)	Installation and building services works	January 2020
(f)	Acceptance test and training	March 2020
(g)	System commissioning	April 2020

15. The above schedule was drawn up with reference to CSD's previous experience and EMSTF's advice. As the said projects will cover all areas of the two institutions, the installation and replacement works will be carried out by phases so as to accommodate the normal operation of the two institutions. During the installation period, CSD will ensure that the operation of PSWCI and SLPC will remain unaffected.

## **PUBLIC CONSULTATION**

16. We consulted the Legislative Council Panel on Security on 12 April 2016 on the proposal. Members supported the proposal and its submission to the FC for funding approval.

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## **BACKGROUND**

17. CSD is committed to providing a secure, safe, humane, decent and healthy environment for PICs. Most of the correctional facilities in Hong Kong were either aged or converted from buildings originally used for other purposes. Therefore, it is necessary to enhance the security installations or systems in order to strengthen institutional security. A reliable and secure CCTV system is necessary in each correctional facility for monitoring the behaviour of individual PICs, supporting the operation of institutions, ensuring the safety of correctional staff and PICs, as well as maintaining institutional security.

18. The existing analogue CCTV system at PSWCI, a medium security institution, was installed more than ten years ago. Meanwhile, the existing CCTV system at SLPC, a maximum security institution, consists of three analogue sub-systems monitoring different areas in the institution. These sub-systems were installed at different times over ten years ago.

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**Replacement of Core Information Technology Systems with the Integrated  
Custodial and Rehabilitation Management System (iCRMS)  
(\$352,754,000)**

Since the 1990s, the Correctional Services Department (CSD) has been making use of information technology (IT) systems to support its day-to-day operations. CSD's existing custodial and rehabilitation operations are supported by eight core operational systems<sup>1</sup>, which play a pivotal role in supporting the operations of CSD. The feasibility studies completed by CSD in 2015 recommended that the existing eight core operational systems of CSD should be replaced by an enhanced, integrated system, namely the iCRMS for enhancing efficiency and supporting future service expansion.

**JUSTIFICATION**

2. CSD proposes to implement iCRMS for replacing the existing core information technology (IT) systems on the following grounds –

- (a) *Existing core operational systems reaching the end of their serviceable life span*

Among the existing eight core operational systems, the Penal Record Information System (PRIS) is a mission-critical system built on a client-server based architecture, which was developed in 1994 for record-keeping purpose. It enables correctional institutions and the CSD Headquarters to access the information of persons in custody (PICs) relating to their admission, custodial activities, transfer and discharge, etc. The rest were supplementary systems developed at different points in time since 2002 to meet specific operational needs.

Launched in phases since 1994, the existing eight core operational systems will approach the end of their serviceable life span from 2018 to 2022. It becomes more difficult for CSD to secure maintenance services due to the ageing hardware and software. Without proper on-going maintenance and technical support, the overall system reliability would be hampered and the day-to-day core

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<sup>1</sup> The eight systems include the Penal Record Information System; the Rehabilitation Programmes Management System; the Tracking and Recording System of Urine Test; the Inmate Mail Information System; the Security Intelligence Management System; the Drug Management System; the Automatic Fingerprint Identification System; and the Patrol Management System.

operations in correctional institutions disrupted. The system replacement should hence take place in time to avoid such risks. Taking into account the lead time required for developing the iCRMS, including replacing and consolidating the existing eight core operational systems and implementing enhancements, CSD considers it necessary to commence the system implementation in 2016.

(b) *Overcoming constraints on data sharing among the existing systems for better strategic planning and services*

CSD has all along maintained an effective, stable and secure correctional environment. Notwithstanding this, there is an imminent need for a more comprehensive and tighter custodial monitoring/management, and more diversified rehabilitation programmes. For example, the timely retrieval of accurate and comprehensive PICs' information is vital for CSD to detect, handle and investigate various incidents, ranging from minor PICs dispute/fighting cases to mass collective misbehaviour incidents such as strikes, mass food refusal / indiscipline.

Although the mission-critical PRIS has undertaken system hardware and software upgrades during the past ten years for operational continuity, the overall system design and architecture of PRIS remains largely the same without major enhancements over the past two decades, giving rise to constraints on data sharing between PRIS and the supplementary systems. Given that the existing silo systems have limited data sharing capability and information is scattered in different systems, it is not conducive to retrieving data for comprehensive analysis in a hectic situation. This might result in delay in decision-making and response, with detrimental consequences.

With the custodial and rehabilitation records of PICs consolidated in one single platform, the iCRMS would provide a holistic view of PICs' information to facilitate operational planning as well as provision of rehabilitation services. For example, the comprehensive PICs' information in iCRMS will facilitate CSD's analysis of the trend of PICs' distribution according to their background, such as age groups, offence types and triad affiliations. This would enhance the effectiveness of policy formulation regarding future allocation of PICs in different types of correctional facilities having regard to their functions and security levels.

With the iCRMS in place, CSD will be better equipped to assess the risks and needs of the PICs with a view to developing thorough security measures. For example, the holistic information of PICs will

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facilitate drawing up tailor-made suitable vocational training, education and rehabilitation programmes for PICs' re-integration into the society. Moreover, information such as individual PICs' personal behaviour, violent history and escape tendency in the past will facilitate pro-active assessment of any vulnerable spots both within and outside the institutions, so that preventive actions can be taken to defuse the situations before any untoward incident occurred.

(c) *Streamlining operations with new functions and supporting security surveillance*

The iCRMS can support new functions such as muster count and tracking of movements of PICs in different areas of correctional institutions; management of PICs' schedules including escort management, allocation of work and vocational training; electronic visit booking service and electronic recording of hand-in articles provided by visitors; keys and equipment management; and management of urine tests for supervisees.

Moreover, each PIC card, which is assigned to a PIC upon admission for identification purpose, will be embedded with a passive Radio Frequency Identification (RFID) chip. While the personal information will continue to be printed on the face of the card, the RFID chip will hold a serial number in encrypted format. PICs will present their cards during most of their daily custodial activities to CSD staff for scanning on designated mobile devices with RFID readers to read the serial number in a contactless manner. The mobile devices will then indicate whether the PICs are authorised to access certain locations after validation and their access information will be recorded electronically.

It is a matter of high security concern that PICs with potential of collaborating in illicit activities might try to communicate with each other within an institution. The electronic movement records, such as where, when and for what purposes PICs are moved, will be conducive to the detection of any illicit activities. Moreover, the electronic movement records will enable Control Rooms in institutions to have holistic knowledge of the movements of the PICs, and facilitate planning for mass movements of PICs. The new functions will enhance the security surveillance capability of penal management and streamline operational process.

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(d) *Streamlining the operational process for higher efficiency*

With the new functions in place, the overall working efficiency would be enhanced through automation of the streamlined procedures. For example, when performing muster count at institutions, currently operational staff have to go around the entire institution at pre-defined intervals to collect muster chits of various locations. The electronic movement records will largely relieve the staff from this duty. In addition, the introduction of electronic calendars with built-in PIC's schedule could assist in better co-ordination on PIC's activities, and enhance efficiency in facilitating PICs' family members to book visits via an e-booking platform.

(e) *Enhancing the capacity of IT infrastructure*

The existing network and systems infrastructure of CSD was set up in the 1990s. As the data centre has already reached its maximum capacity, it is unable to meet the IT development needs of CSD in the long run, including the implementation of the iCRMS. The existing data centre has to be enhanced in its capability and capacity to host the iCRMS. The enhancement of capability will improve the overall resilience and stability of CSD's application systems. The adoption of virtualization technology will overcome the existing capacity constraints of the data centre by building a more scalable and flexible platform, providing room for future service and capacity expansion.

## FINANCIAL IMPLICATIONS

### Capital Expenditure

3. It is estimated that the implementation of the iCRMS will incur a total capital expenditure of \$352,754,000. The detailed breakdown is as follows –

	<b>\$'000</b>
(a) Hardware	82,466
(b) Software	43,497
(c) Implementation services	110,470
(d) Contract staff	27,500
(e) Site preparation	53,789
(f) Communication network	994
(g) Consumables	305
(h) Training	1,664
(i) Contingency	32,069
<b>Total</b>	<b>352,754</b>

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4. On paragraph 3(a) above, the estimated expenditure of \$82.47 million is for the acquisition of computer hardware, including servers, storage systems, network equipment, mobile devices, etc.

5. On paragraph 3(b) above, the estimated expenditure of \$43.50 million is for the acquisition of computer software, including operating system software, database management software, business intelligence analysis software, mobile device management software, etc.

6. On paragraph 3(c) above, the estimated expenditure of \$110.47 million is for system implementation services, including system design and development, system installation and project management; and consultancy services of privacy impact assessment and security risk assessment and audit, etc.

7. On paragraph 3(d) above, the estimated expenditure of \$27.50 million is for the engagement of contract staff during the implementation to provide support in project management, procurement, quality assurance, system acceptance and contract management.

8. On paragraph 3(e) above, the estimated expenditure of \$53.79 million is for site preparation of extending network coverage in institutions and accommodating servers and equipment, including provision of data centre facilities, trunking and cabling, etc.

9. On paragraph 3(f) above, the estimated expenditure of \$994,000 is for the set-up cost of increasing network bandwidth to meet the increased loading of the new system.

10. On paragraph 3(g) above, the estimated expenditure of \$305,000 is for the acquisition of start-up consumables, including backup tapes, RFID cards, etc.

11. On paragraph 3(h) above, the estimated expenditure of \$1.66 million is for the training of trainers, end-users and system administrators on the new system.

12. On paragraph 3(i) above, the estimated expenditure of \$32.07 million represents a 10% contingency on the items set out in paragraph 3(a) to (h).

13. It is estimated that the cash flow requirement for the proposed installation will be as follows –

<b>Financial Year</b>	<b>\$'000</b>
2016 – 17	556
2017 – 18	29,146
2018 – 19	65,573
2019 – 20	89,026
2020 – 21	99,307
2021 – 22	56,068
2022 – 23	13,078
<b>Total</b>	<b>352,754</b>

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

14. The implementation of the iCRMS will require the formation of an internal project team which comprises members of IT staff and user representatives. The project team will be responsible for IT project management and implementation support such as tendering, provision of user requirements, site preparation, system integration tests, user acceptance tests, verification of converted data, end-user support during the system rollout. This will entail a non-recurrent staff cost of some \$84 million from 2016-17 to 2022-23.

#### **Recurrent Expenditure**

15. The proposal is estimated to incur an annual recurrent expenditure of \$2.47 million in 2017-18, increasing to \$48.27 million from 2023-24 and onwards. CSD will absorb such requirement with its existing resources.

#### **Savings and Cost Avoidance**

16. If the iCRMS could not be approved and the Government had to sustain the existing business operation, the following costs would be involved –

- (a) extraordinary expenses for sustaining the existing business operation: A one-off provision of \$157.81 million in 2017-18 to 2020-21 would be needed to upgrade the obsolete hardware and software of the existing eight core operational systems, including the related implementation services. A recurrent provision of \$7.01 million from 2021-22 onwards would be required as the additional maintenance cost for the upgraded systems. These costs would be avoided if the new system is approved; and

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- (b) regular maintenance and support costs and staff costs under the existing eight operational systems: A recurrent provision of \$52.83 million from 2022-23 onwards would be needed for the regular maintenance and support cost of the existing eight core operational systems, and staff costs to sustain existing business operation which could be enhanced by iCRMS. These costs would be saved if the new system is approved.

Annex 17. A cost and benefit analysis for the proposed system is at Annex.

## IMPLEMENTATION PLAN

18. Subject to Finance Committee (FC)'s approval, we plan to implement the proposed system according to the following schedule –

Activity	Target Completion Date
(a) Tendering	
- Preparation of tendering documents	October 2016 July 2017
- Tendering procedures	August 2017
- Award of contract	
(b) Systems Analysis and Design	December 2018
(c) Phase I <sup>2</sup>	
- System development <sup>3</sup>	March 2020
- Site preparation	June 2021
- User acceptance test and data migration	August 2020 June 2021
- Rollout	
(d) Phase II <sup>4</sup>	
- System development <sup>3</sup>	August 2021
- Site preparation	February 2022
- User acceptance test and data migration	November 2021
- Rollout	February 2022
(e) System Nursing	August 2022
(f) Project Completion	September 2022

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<sup>2</sup> Complete the integration of the eight core systems with enhancements.

<sup>3</sup> System development consists of application development, system installation, Security Risk Assessment and Audit (SRAA), Privacy Impact Assessment (PIA) and system integration tests.

<sup>4</sup> Deliver the new functions in relation to the use of mobile devices.

## **PUBLIC CONSULTATION**

19. We consulted the Legislative Council Panel on Security on the above proposal on 1 March 2016. Members supported the proposal and its submission to the FC for funding approval.

## **BACKGROUND**

20. Since the 1990s, CSD has adopted IT systems to support its day-to-day operations. Envisaging the need for a long-term IT strategy to support its operational development and objectives, CSD engaged an external consultant in 2012 to conduct an Information Systems Strategy Study. The first Information Systems Strategy Plan (ISSP) was developed in 2013, introducing a five-year strategic roadmap for IT systems development in CSD.

21. Following the recommendations of the ISSP, CSD completed feasibility studies on the iCRMS and IT Infrastructure Upgrade in 2015. The feasibility studies recommended that the existing eight core operational systems of CSD should be replaced by an enhanced, integrated system, namely, the iCRMS. The studies also recommended that the existing data centre be enhanced to host the iCRMS, and that the network coverage in all correctional institutions be extended so as to cater for the implementation of iCRMS and the long-term business needs of CSD.

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Cost and Benefit Analysis for the Replacement of Core Information Technology Systems  
with the Integrated Custodial and Rehabilitation Management System  
(\$'000)

	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	Grand Total
<b>Cost of the proposed system</b>													
Capital Expenditure	556	29,146	65,573	89,026	99,307	56,068	13,078	-	-	-	-	-	352,754
Other Non-recurrent Expenditure	7,462	12,610	12,820	15,730	16,318	15,460	3,352	-	-	-	-	-	83,752
Sub-total	8,018	41,756	78,393	104,756	115,625	71,528	16,430	-	-	-	-	-	436,506
Recurrent Expenditure	-	2,471	10,236	15,538	18,424	24,331	39,649	48,273	48,273	48,273	48,273	48,273	352,014
(A) Total cost	8,018	44,227	88,629	120,294	134,049	95,859	56,079	48,273	48,273	48,273	48,273	48,273	788,520
<b>Savings and cost avoidance</b>													
Non-Recurrent													
- Upgrade cost for existing systems	-	10,208	44,011	66,680	36,913	-	-	-	-	-	-	-	157,812
Sub-total	-	10,208	44,011	66,680	36,913	-	-	-	-	-	-	-	157,812
Recurrent													
- Additional maintenance cost for the upgraded system for existing operation	-	-	-	2,864	6,380	7,005	7,005	7,005	7,005	7,005	7,005	7,005	58,279
- Maintenance cost and staff cost for the existing operation	-	-	-	-	9,020	34,698	52,827	52,827	52,827	52,827	52,827	52,827	360,680
Sub-total	-	-	-	2,864	15,400	41,703	59,832	59,832	59,832	59,832	59,832	59,832	418,959
(B) Total savings	-	10,208	44,011	69,544	52,313	41,703	59,832	59,832	59,832	59,832	59,832	59,832	576,771
(C) = (B) – (A)	-8,018	-34,019	-44,618	-50,750	-81,736	-54,156	3,753	11,559	11,559	11,559	11,559	11,559	-211,749
Net cost (-) / Net savings (+)													
Net Cumulative Cost/Savings	-8,018	-42,037	-86,655	-137,405	-219,141	-273,297	-269,544	-257,985	-246,426	-234,867	-223,308	-211,749	-

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