

For information

Legislative Council Panel on Security

New Command and Control Communications System
for Operations Department of Hong Kong Police Force

Background

Members considered the paper on the proposed new command and control communications system (CCIII) for the Police at the Panel meeting on 28 January 2000. While agreeing that there is a need for a new command and control communications system from the security and operational points of view, Members requested additional information on the cost estimation of the project. This information is outlined in the ensuing paragraphs.

Cost Estimation

(a) Non-recurrent cost

2. Drawing reference to the radio systems currently used by the Police and price quotations in recent tender exercises, we estimate that the non-recurrent cost of the proposed CCIII will be \$988 million, broken down as follows -

	\$million
(a) Command, control and network management sub-system	100.0
(b) Radio repeater sub-system	74.0
(c) Backbone radio relay sub-system	30.0
(d) Subscriber radios with encryption	360.0
(e) 999 emergency services telephone sub-system	15.0
(f) Automatic Vehicle Location (AVL) and Global Positioning System (GIS)	66.5
(g) Enhanced Computer Assisted Command and Control System (ECACCS)	78.0
(h) Mobile computing sub-system	68.5
(i) Project management (employment of contract staff)	48.4
(j) Consultancy study	10.0
(k) Supporting services	44.0

(including site preparation, installation, training and documentation)

(l) Maintenance, test equipment and spares for the first year	58.0
(m) Radio spectrum licence fee and tariff for leased line rental	15.0
(n) Contingency	20.6

Total	988.00

3. As regards paragraph 2(a), the estimate of \$100 million is for the procurement of two digital exchange switches at two Regional Command and Control Centres (RCCCs) (one is shared by the three RCCCs while the other is the reserve), 120 despatcher terminals and console furniture in Headquarters CCC and three RCCCs, nine voice loggers (recorders) at three RCCCs, three message/data switching servers Internet Protocol routers, wall displays for mobile data in three RCCCs, ECACCS/radio interface gateway, remote status monitoring of radio equipment at hilltop stations and key locations, uninterruptible power supplies, radio network management system and terminals.

4. As regards paragraph 2(b), the estimate of \$74 million is for the procurement of digital radio repeaters and antenna equipment to be installed at the hilltop radio stations and government buildings. It comprises a total of

175 basestations grouped into 80 cell sites (\$72 million) and two power supplies for each cell site (\$2 million). The urban areas of the harbour basin will have 15 cell sites with three basestations per site while the remaining 65 cell sites will each need two basestations.

5. As regards paragraph 2(c), the estimate of \$30 million is for the procurement of three main loops of 15 GHz digital microwave hot-standby/diversity radios connecting the hilltop stations, cell sites and Headquarters CCC/RCCCs, 10-15 spur links inter-connecting the main loops and the district operation rooms. The sub-system will also have the capacity to serve as a dedicated wireless radio back-up for the leased circuits between RCCCs.

6. As regards paragraph 2(d), the estimate of \$360 million is for the procurement of 10 500 encrypted portable radios for use by about 24 000 officers (\$304 million), 1 500 encrypted vehicular radios (\$46 million), three radio storage racks per police station for 68 stations (\$2 million), 68 battery conditioner (\$1 million), 680 multi-unit battery chargers (\$5 million), and 18 encryption keyfill loaders and keyfill work stations for 18 district operation rooms (\$2 million).

7. As regards paragraph 2(e), the estimate of \$15 million is for the procurement of a new emergency services telephone sub-system to handle 999 calls. The sub-system includes 999 PABX and suite for seven operator/supervisor positions with computer-telephony integrative terminal at each RCCC, ten additional operator positions for overflowed calls from 999

suite, facility to intra-flow influx of 999 calls to other console operators within the same RCCC, facility to inter-flow 999 calls from one RCCC to another designated RCCC, 999 network management system, three uninterruptible power supply for the PABXs at three RCCCs, interface gateway with the GIS and equipment installation, factory acceptance, training and documentation.

8. As regards paragraph 2(f), the estimate of \$66.5 million is for the procurement of equipment including 500 global positioning satellite receivers with vehicle installation (\$2.5 million), hardware and software for AVL and GIS (\$30 million), four high speed local area networks (LAN) for handling AVL and GIS data traffic in Headquarters CCC and three RCCCs (\$4 million), and 100 GIS terminals and software (\$30 million).

9 As regards paragraph 2(g), the estimate of \$78 million is for the procurement of two resilience servers (\$20 million), two computer aided despatch (CAD) software (\$12 million), 300 CAD workstations for the RCCCs (\$30 million), and the associated system integration/engineering services for interfacing other systems such as Enhanced Police Operational Nominal Index Computer System (EPONICS) (\$16 million).

10. As regards paragraph 2(h), the estimate of \$68.5 million is for the procurement of 500 laptop computers for patrol vehicles and vessels with installation (\$35 million), 500 wireless data modem (\$ 6 million), 500 client software (\$7.5 million) and hardware and software for wireless LAN gateway, firewall server and application server (\$20 million).

11. As regards paragraph 2(i), the estimate of \$48.4 million is for the employment of contract staff including 54 man-months of Senior Telecommunications Engineer, 162 man-months of Telecommunications Engineer, 60 man-months of Senior Project Manager, 108 man-months of Project Manager, 168 man-months of Systems Analyst and 168 man-months of Programmer for the detailed planning and implementation of the new communications system.

12. As regards paragraph 2(j), the estimate of \$10 million is for the conduct of a consultancy study, including the procurement of equipment for trial, to examine the feasibility and cost-effectiveness of applying the mobile computing concept on beat officers, advise on the most appropriate device to meet the operational requirements and the conduct of pilot trials. The study will be completed in early 2001.

13 As regards paragraph 2(k), the estimate of \$44 million is for supporting services such as equipment installation for cost items 2(a) to (c), viz. command control and network management sub-system, radio repeater sub-system and backbone radio relay sub-system (\$24.3 million), site preparation for 80 cell sites (including ten hilltop sites) and RCCC preparation (\$10.8 million), training and documentation (\$8.4 million), tender evaluation and factory acceptance test (\$0.5 million).

14. As regards paragraph 2(l), the estimate of \$58 million is for provision of modular and field replaceable units, consumable spare components, special-to-type test equipment and general test equipment estimated at 10% of

the total cost of items 2(a) to (e).

15. As regards paragraph 2(m) the estimate of \$15 million is for the radio spectrum licence fee and tariff for leased line rental (first year) from the public network operator. It comprises radio spectrum fees for repeater and backbone radio relay frequencies (\$0.6 million), subscriber radio licence fees (\$3.4 million), leased lines installation (\$0.4 million), and annual tariff for leased lines (\$10.6 million).

16. As regards paragraph 2(n), the estimate of \$20.6 million represents 2.6% contingency on the cost items set out in paragraph 2(a) to (h).

(b) Recurrent cost

17. The estimated additional annually recurrent expenditure arising from the proposed system will be \$4,747,000, broken down as follows -

	\$'000
(a) Recurrent cost of the proposed system	
(i) System maintenance and spare parts	14,500
(ii) Leased-line rental	10,632
(iii) Radio spectrum licence	4,000
(iv) Computer equipment maintenance	27,615

	Sub-total	56,747
<u>Less</u>		
(b) Recurrent cost of the existing systems		(52,000)
	Total	4,747

18. As regards paragraph 17(a)(i), the estimate of \$14.5 million is for annual maintenance support for the proposed beat radio system with an estimated life span of 14 years.

19. As regards paragraph 17(a)(ii), the estimate of \$10.6 million is for rental of high speed data lines which connect the RCCCs and the major hilltop radio stations.

20. As regards paragraph 17(a)(iii), the estimate of \$4 million is to cover the radio spectrum license fees.

21. As regards paragraph 17(a)(iv), the estimate of \$27.6 million is for outsourcing the hardware and software maintenance services of the new computer equipment of AVL, GIS and mobile computing sub-system.

22. As regards paragraph 17(b), it is the annual recurrent maintenance cost of the existing systems including the current command and

control communications system and radio systems currently used by Traffic Branch, Police Tactical Unit and Emergency Unit.

Way Forward

23. We will submit the proposal for the consideration of the Finance Committee at its meeting on 10 March 2000.

Security Bureau

March 2000

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