

For discussion
on 27 March 2006

Legislative Council Panel on Economic Services
Proposal to Replace Civil Aviation Department's
Air Traffic Control Radar Simulator

Introduction

This paper briefs Members on the proposal to replace the Air Traffic Control (ATC) radar simulator of the Civil Aviation Department (CAD) at an estimated non-recurrent cost of \$16.5 million.

Replacement of the ATC radar simulator

Background

2. CAD's ATC radar simulator is an essential tool used to simulate ATC scenarios and evaluate the design of new air routes and flight operation procedures for aircraft landing at the Hong Kong International Airport (HKIA) and nearby airports and aircraft overflying the 276,000 km² Hong Kong Flight Information Region managed by CAD. The simulation and evaluation is an indispensable process in the rationalisation of airspace to enhance the safety and efficiency of air traffic.

3. The existing simulator was commissioned in 1995 and is approaching the end of its usable life. Designed in the early 1990's, the simulator lacks the capacity and functionality to cope with the complexity of present-day ATC simulation and evaluation. Its limited processing power and speed is unable to simulate the real-life air traffic scenarios in the Pearl River Delta (PRD), which are getting increasingly complicated because of the robust air traffic growth. This limitation hampers the evaluation of possible new air routes or flight procedures aimed at improving ATC reliability and efficiency for the busy PRD airspace.

4. The simulator is also an important tool used to provide initial radar training for CAD's student air traffic controllers and refresher training for licensed controllers to meet their licensing requirements. The existing simulator cannot cope with the training needs of controllers. Over the years, new functions have been incorporated into the actual ATC equipment operated by controllers, such as projection of aircraft flight path and alert of potential conflict between aircraft. The simulator however cannot feature these functions for controller training. Its capacity also gradually lags behind the increasing training demand as a result of the recruitment of more controllers.

5. In the light of the above, there is a need to replace the existing simulator in time to support rationalisation of airspace design and proper training of controllers. This is crucial to maintaining a safe and efficient air transport system for Hong Kong.

Replacement Proposal

6. Based on the latest market information, it is estimated that the proposal to replace the existing ATC radar simulator will incur a non-recurrent cost of \$16.5 million, with the following break-down —

| | \$ million |
|--|-------------------|
| (a) equipment provision and installation | 14.0 |
| (b) modification of existing simulator room and associated building services | 0.7 |
| (c) technical services by CAD's maintenance contractor | <u>0.3</u> |
| Sub-total | 15.0 |
| (d) contingency (10%) | 1.5 |
| Total | <u>16.5</u> |

7. As regards paragraph 6(a), the estimate of \$14 million is for the replacement simulator and expenses in relation to installation, commissioning, testing, spare parts, and staff training on equipment maintenance.

8. As regards paragraph 6(b), the estimate of \$0.7 million is for the essential modification and renovation works to the existing simulator room, with the following break-down —

| | \$ million |
|---|-------------------|
| (a) re-partitioning/renovation of existing simulator room | 0.25 |
| (b) modification of fire-fighting system | 0.30 |
| (c) modification of power supply/lighting system | 0.15 |
| | <hr/> |
| Total | <u>0.70</u> |

9. As regards paragraph 6(c), the estimate of \$0.3 million is for CAD's maintenance contractor to dismantle and dispose of the existing simulator and to assist in on-site installation and configuration of the replacement simulator.

Recurrent Cost

10. The replacement simulator will be maintained by CAD's maintenance contractor and no additional staff will be required. The total recurrent cost on spare parts and light and power consumption is estimated to be about \$370,000 per annum, to be absorbed within CAD's existing provision for maintenance of ATC equipment and facilities.

Implementation Plan

11. We plan to implement the proposal according to the following schedule –

| <u>Activity</u> | <u>Target completion date</u> |
|--------------------------------|-------------------------------|
| Tender invitation | July 2006 |
| Award of contract | February 2007 |
| Equipment delivery | September 2007 |
| Installation and commissioning | December 2007 |

Impact on Fees and Charges

12. While the amortised project cost will be recovered through the ATC charges¹ and En-route Navigation Charges², the impact on fees and charges is expected to be minimal.

Consultation

13. We have consulted the Technical Sub-committee of the Aviation Development Advisory Committee at its meeting on 17 March 2006. The Sub-committee supported the proposal.

Way Forward

14. We plan to seek the approval of the Finance Committee shortly for the non-recurrent funding of the proposal.

Views Sought

15. Members' views on the proposal are invited.

Economic Development and Labour Bureau
20 March 2006

¹ ATC charges are collected by CAD from the Airport Authority on full cost recovery basis.

² En-route Navigation Charges (for overflying aircraft not landing at HKIA) are recovered by CAD directly from airlines.