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22 July 2013

Clerk to the Legislative Council Panel on Economic Development
(Attn: Mr Noel Sung)
Legislative Council
Legislative Council Complex
1 Legislative Council Road
Central, Hong Kong

Dear Mr Sung,

**Replacement of the Air Traffic Control System
of the Civil Aviation Department**

Thank you for your letter dated 9 July 2013.

The Government attaches paramount importance to maintaining aviation safety, and is committed to providing an efficient air traffic management service with a view to consolidating Hong Kong's leading position as an international aviation hub. The Civil Aviation Department (CAD) has strictly followed the relevant rules and procedures as stipulated in the Government Stores and Procurement Regulations (SPR) throughout the replacement process for the new air traffic control system. The new system fully meets the international requirements for air traffic management.

Our reply to the questions of Hon Gary Fan in the letter is set out in the ensuing paragraphs.

Procurement of the new system

The tender document for the procurement of the new Air Traffic Management System (ATMS) was developed by the CAD in 2009, and vetted by the Government Logistics Department (GLD), Department of Justice (DoJ), as well as the Government Central Tender Board which comprised representatives from the Financial Services and the Treasury Bureau (FSTB), GLD and DoJ. The new system was procured via an open tender process in accordance with the SPR. In the process of preparing the tender document, the CAD had conducted comprehensive market research of similar systems, and paid visits to major air traffic control centres in the United Kingdom, Australia, Italy, France, Norway, Guangzhou and Beijing, etc, to exchange views with the air traffic control personnel there and make reference to their views and experience in operating air traffic management systems. CAD had also incorporated the latest technology and safety requirements into the tender document.

The evaluation of the tenders for the new ATMS was conducted strictly in accordance with the SPR. A Tender Assessment Panel (TAP) with experienced engineering and air traffic control personnel was established by the CAD to evaluate the tender offers. The TAP was led by a Chief Electronics Engineer, with members of one Senior Electronics Engineer, three Electronics Engineers, one Senior Evaluation Officer, two Senior Air Traffic Control Officers, two Air Traffic Control Officers and one Technical Support Officer.

The TAP adopted a marking scheme as stipulated in the SPR to evaluate the tender offers. It consisted of two parts, namely the technical and price score, contributing to weighting of 40% and 60% respectively of the overall score. The tenderer obtaining the highest overall score would be awarded the contract. Such evaluation criteria were clearly stipulated in the tender document for reference by the potential bidders. To ensure that the evaluation was conducted in a fair and impartial manner, the TAP firstly conducted technical assessment against each tender and calculated the technical score. After completion of the technical assessment, the GLD then provided the TAP with the price information of the tenders to calculate the price score. CAD had not changed the evaluation criteria throughout the tendering process.

After completion of the tender evaluation by the TAP, the tender with the highest score was recommended for consideration and approval by the Government Central Tender Board which is chaired by the Permanent Secretary for Financial Services and the Treasury (Treasury), and comprised representatives from the FSTB, GLD and DoJ. Since the tender proposal of the Autotrak3 system offered by the Raytheon Company obtained the highest overall score, the Raytheon Company was awarded the contract for the new ATMS. The contract was signed between the GLD and the Raytheon Company in early 2011.

Enhancement of the new system

In light of the rapid development in air transport and aviation technology, and the need to meet the higher international standards on air traffic management and new requirements of the International Civil Aviation Organisation (ICAO), in particular the relevant requirements set out in the new Global Air Navigation Plan endorsed by ICAO for implementation at the 12th Air Navigation Conference held in 2012, the new ATMS Project team of CAD had conducted a thorough study and concluded that there was a need to further enhance the new ATMS. The enhancement work would be undertaken in two phases. The phase one work which costed around HK\$40 million included enhancement of the related functions in air traffic flow management and human-machine interface, as well as addition of training positions in the Simulator System. The above enhancement work would further enable CAD to meet the latest operational needs of air traffic in Hong Kong. CAD is actively preparing for the phase two work to meet the relevant requirements of the ICAO Global Air Navigation Plan. All contract variations arising from the enhancement work will be proceeded in strict accordance with the SPR and must be approved by the GLD. The total cost for the replacement of the air traffic control system project (including the enhancement work) will not exceed the limit of the approved budget.

Stability of the new system

The contract of the new ATMS was awarded to the Raytheon Company for designing and manufacturing the Autotrac3 system after undergoing a stringent tender evaluation process. The Raytheon Company has over 50 years of experience in designing and manufacturing air traffic control and radar systems, and their systems are widely used by civil aviation authorities around the world, including the United States, Dubai, India, etc.

The CAD has enquired with the Airports Authority of India (AAI) and was given to understand that the three air traffic control (ATC) centres in New Delhi, Mumbai and Chennai are currently using the Raytheon Company's Autotrac3 systems, which were officially put into full operations in 2011. The AAI is satisfied with the overall performance of the systems. Moreover, subsequent to the commissioning of the new systems in the three ATC centres in New Delhi, Mumbai and Chennai, the AAI was awarded the Jane's 2012 ATC Operational Efficiency Award¹ and the ATC Global Awards 2013 - Air

¹ The award is presented by Jane's Airport Review under IHS (Information Handling Services). This organisation is an independent and well recognised platform in the aviation industry. The award aims at commending and rewarding party with good performance records over the past 12 months across seven key areas of air traffic control. The Airports Authority of India was the winner of Operational Efficiency Award in 2012.

Navigation Services².

The CAD will conduct detailed and stringent functional testing on the new systems before the new ATC Centre is put into operational use. In addition, safety assessment will be conducted in accordance with the established international aviation safety management standards and procedures to ensure the safety, reliability and stability of the new systems.

Functions of the new system

The new ATMS can handle approximately 8,000 flight plans every day and monitor 1,500 air or ground targets simultaneously, which is about 5 and 1.5 times of existing system respectively. In addition, the new system adopts several advanced technologies, including (1) “Multi-sensor Tracking” technology which fuses and processes the radar and surveillance sensors information; (2) “ATS Inter-facility Data Communication” technology which exchanges the aeronautical information with the adjacent air traffic control centres and coordinate the transfer of aircraft control; (3) advanced flight trajectory prediction algorithm to enhance conflict prediction, alert and resolution capability; and (4) “Automatic Electronic Flight Strip” technology which automatically displays the important flight information for reference by the air traffic control officers.

Opening of the new Air Traffic Control Center

Due to delay in tendering of the “Design and Construction” works of the new CAD Headquarters Building, coupled with the need to optimize the Autotrac3 system and the longer time taken to test and evaluate the system than expected, commissioning of the new ATC Centre could not commence by end of 2012 as originally scheduled. The CAD is making every effort to complete the implementation of the air traffic control system replacement project. Installation work of the other six major systems at the new ATC Centre has been substantially completed, and acceptance tests are progressing.

To ensure the new systems are safe, reliable and stable, the systems of the ATC Centre will undergo a series of stringent tests and satisfy safety assessment conducted in accordance with the established international aviation safety management standards and procedures. It is expected that the enhancement and functional testing of the new Autotrac3 system will be completed in the first quarter of 2014 the earliest, followed by comprehensive

² The award is presented by the ATC Global in association with Air Traffic Management magazine. It aims at commending and rewarding individuals and organisations to drive forward the air traffic management industry.

integration testing and training of the new systems. The earliest operation of the new ATC Centre is estimated to be in the second half of 2014.

Thank you for the interest of the Members in the project.

Yours sincerely,



(Desmond Wu)

for Secretary for Transport and Housing

c.c. Director-General of Civil Aviation (Attn: Mr Simon Li)