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保安局

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The Government of the
Hong Kong Special Administrative Region
Security Bureau

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本函檔號 Our Ref.: SBCR 1/2191/17

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22 May 2019

Clerk to Public Works Subcommittee
Finance Committee
Legislative Council
Legislative Council Complex
1 Legislative Council Road
Central, Hong Kong
(Attn.: Ms Doris LO)

Dear Doris,

Legislative Council
Public Works Subcommittee of Finance Committee
Follow-up actions on PWSC(2018-19)44 –
Flight Simulator Training Centre of the Government Flying Service

The Administration's response to the list of follow up actions on PWSC(2018-19)44 is enclosed at **Annex** please.

Yours sincerely,

(Trinky CHAN)
for Secretary for Security

Encl.

c.c. Financial Services and the Treasury Bureau (Attn: Mr Chris Mong)
Government Flying Service (Attn: Ms May Lee)
Architectural Services Department (Attn: Ms Jenny Chan)

Annex

1. How can the Flight Simulator Training Centre ("FSTC") proposed by the Government Flying Service ("GFS") improve training efficiency

(a) According to the current regulations, the GFS helicopter pilots of respective ranks are required to receive the following hours of training in order to achieve the qualifications to become fully operational:

Rank	Total Flying Hours on Upgrade Training (Hour) [1]	Total Flying Hours for Continuing Training and Check Flights (Hour) [2]	Other Flying Experience (Hour) [3]
Cadet Pilot	85	90	400 - 500
Pilot II	195	130	200 - 300
Pilot I	75	120	400 - 500
Training Captain (Most are Senior Pilots or experienced Pilot Is)	30	6 -7/ year	-
Examiner (Most are Chief Pilots or Senior Pilots)	25	5-6/year	-
Remarks: 1 – 2. The minimum flying hours according to the GFS Operations Manual for Helicopter Training approved by the Civil Aviation Department. 3. Flying experience (hours) typically required for a pilot to consolidate his skills for all levels and qualifications achieved for the respective ranks, excluding the minimum flying hours as stated in Remarks 1 and 2.			

In response to the above requirements, each GFS pilot is generally required to complete and accumulate 1,700 to 2,000 hours of flying training and operating hours in order to be qualified for various types of operational tasks.

(b) According to GFS's current training and operational arrangements, subject to resources and constraints such as facilities, weather and manpower, a Cadet Pilot will normally take about 8 to 10 years to complete the 1,700 to 2,000 hours of training and operating hours mentioned above to become a fully operational Pilot I. We expect that after the commencement of the proposed FSTC, the training and assessment efficiency could be improved, the overall training time can be reduced by about one year on average. Each helicopter pilot can therefore become a fully operational Pilot I around one year earlier.

(c) According to the current plan, there will be no change to the training standards (including training hour requirements) of the GFS pilots of respective ranks after the commencement of the FSTC.

2. Cost effectiveness of the establishment of the FSTC

(a) The construction unit cost of the proposed project (calculated in terms of building and building services costs) is $85,135 per square metre of construction floor area, which is slightly higher than other projects. Reasons include:

The proposed project includes the construction of the FSTC for the installation of a flight simulator training device ("the Simulator") for GFS to train their pilots in accordance with international civil aviation standards and the training requirements for meeting the operational needs. Given the uniqueness of the project which the building and the building services are designed to meet the requirement of the installation and maintenance of the Simulator in future, direct cost comparison with other projects is impracticable. Taking into account the following factors, the estimated construction cost is considered reasonable:

(i) The comparatively small scale of the project as well as the following special requirements in the design of building and building services to match with the Simulator's operational requirements contribute to the higher construction cost of the project :

- the height of the simulator hall of the FSTC is comparatively higher than that of other projects;

- provision of additional backup air-conditioning system in FSTC;
- provision of different sprinkler and gas flooding fire extinguishing systems in FSTC; and
- connection of interfacing signals for building services installation of the FSTC to the existing GFS headquarters building for central monitoring.

(ii) The project will incur additional costs due to the following site constraints :

- The FSTC is in close proximity to the GFS headquarters building and the adjacent Hong Kong Business Aviation Centre aircraft berth; there are also underground public utilities such as high-voltage cables and fuel pipes. Appropriate protection measures and arrangements are therefore required (such as taking appropriate measures to prevent construction materials from being blown to aircraft berths and runways during construction) in order to avoid affecting the normal operation of the airport; and

- The construction site is located within the restricted area, the site workers and transport vehicles are required to undergo security inspections each time when entering and leaving the site. In addition, the height of the machinery used in the construction is also limited by the Airport Height Restriction.

(iii) In view of the stringent site area as well as short construction programme, the project adopts steel sructure and precast concrete panel, which would incur higher construction cost, so as to enhance the construction efficiency, reduce the impact on existing traffic and buildings during construction and to speed up the progress of the project.; and

(iv) The project is located within the restricted area of the airport which requires higher standard of acoustic installation to suit the operational requirements of the FSTC. This will also incur higher construction cost. .

(b) Cost-benefit analysis of the establishment of the FSTC is as follows :

(i) Finanical benefits

Item	Expenditure Involved ($M)	Expected savings ($M)
(A) One-off Expenditure	**$512.1**	
(i) Construction of the FSTC	$112.1	
(ii) Procurement of the Simulator	$400.0	
(B) Recurrent Cost (per annum)	**$8.2**	
(i) Maintenance and daily operating cost of the FSTC (including salary expenditure of staff)	*$3.2*	
(ii) Regular hardware and software updates and maintenance of the Simulator	*$5.0*	
(C) Savings (per annum)		**$53.0**
(i) If there is no simulator established in the GFS, costs for each helicopter pilot to travel overseas to carry out simulator flying training (including airfare, accommodation, related training costs and allowances, round-trip travelling time equivalent salary expenditure), and the direct operating costs of the real aircraft (including fuel and maintenance) for flying training and assessments on the real aircraft		$34.0
(ii) After the establishment of the Simulator, more than 40% of the general or continuous flying training that can now only be carried out on a real aircraft can be changed to the Simulator and thus the direct operating cost of the real aircraft can be saved		$19.0

Item	Expenditure Involved ($M)	Expected savings ($M)
(D) **Net Savings (per annum) [(C)-(B)]: $44.8 million**		
(E) **Estimated cost recovery period [(A) / (D)]: 11.4 year**		

(ii) Intangible benefits

In addition to the above financial benefits, the Simulator will bring the following intangible benefits to the GFS:

Enhancement of the safety level of operation and training

Pilots can use the simulator to practise on the handling of more complicated situations, including those operational procedures which cannot be conducted in real helicopters for safety reasons, and can more fully grasp the approach for handling system failures and other unexpected conditions by repeatedly practising different operating procedures, thereby enhancing flight safety.

Increased manpower resources for pilot deployment

With the establishment of the FSTC, pilots can stay in Hong Kong for simulator training without being deployed to overseas for relevant training and the travelling time saved can be used for performing duties. The manpower resources available for deployment for operational duties will increase. GFS can have more flexibility in arranging and modifying the training and assessment carried out on the simulator to cope with the operational needs and other emergency conditions, thus enhancing service and training efficiency.

Increasing the availability of helicopters for operations

When the Simulator becomes operational, some training and assessments which are currently conducted on operational helicopters can be conducted on the Simulator instead.

The helicopters can thus be released for operations. It can also bring greater flexibility to the repair and maintenance of helicopters.

Improving training and assessment efficiency

Currently, local training and assessments on operational helicopters are easily affected by a number of uncontrollable factors, such as weather conditions, unavailability of training slots due to continuous increase in air traffic at the airport, urgent operational commitment or maintenance, which can cause serious delay in the training schedule of pilots. In the future, such training can be conducted in the Simulator and it will minimise the impact of such uncontrollable factors such as weather conditions. The overall training efficiency of the helicopter pilot can thus be improved.

(c) Expected usage of the FSTC is as follows:

By 2021, the number of helicopter pilots in the GFS is expected to reach 56, an increase of 56% over the current number of civil service helicopter pilots, excluding six Senior Line Pilots employed on non-civil service contract terms. The number of helicopter pilots who need to use the FSTC frequently for training will reach 62. It is estimated that the Simulator in the FSTC will be used for training at least 80% of the daily operating time throughout the year. Taking into account the time for maintenance, inspection and warranty, the Simulator is expected to operate every day of the year and there will be no continuous idleness. The GFS has no plan to make available the Simulator for rental by other agencies.

3. Overseas flight simulator training related information

(a) The current fee for training and assessment of the H175 helicopter simulator in France is Euro 2,150 per hour. The fee may be adjusted and increased.

(b) According to the understanding of the GFS, the Airbus Helicopter may partner with other company/companies to establish the H175 helicopter flight simulator training centre in Texas, USA.

However, GFS currently does not have information on when the centre will be completed, the future charges of the centre, restrictions on the use of simulator by non-local pilots and application arrangements, etc. In addition, since the distance from Hong Kong to this training centre is farther than that of France, the journey takes longer and the cost of sending staff to the centre for training is likely to be higher. GFS currently has no plan to send staff to the relevant flight training centre for flight simulator training.

4. Procurement method and prcedure of the Simulator

The Simulator will be procured in open tenders in accordance with the Government's established procurement regulations and procedures. The specific procurement procedures include the tender preparation, launch of tender, evaluation of tender and negotiation, and the award of tender, etc. GFS and the relevant Government departments have started the work of preparing the tender documents to prepare for the launching of the tendering process in mid-2019. According to the market research conducted by the GFS, a number of qualified and well-established simulator manufacturers initially expressed their interest in bidding for the Simulator's procurement contract. After the completion of the tendering process, the manufacturer is required to complete the manufacturing, shipping, installation, testing and other procedures within the timetable specified in the contract. According to the current plan, the Simulator can be operated at the same time upon the completion of the FSTC project.