

Singapore moves to improve air traffic management

Expect fewer delays and smoother flights when new system is rolled out in late 2020s

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Singapore is laying the groundwork for a new air traffic management (ATM) system that will allow the Republic to better manage a projected increase in flights in the future and reduce delays.

The Civil Aviation Authority of Singapore (CAAS) intends to purchase the new ATM system in the mid-2020s, and roll it out in the latter half of the decade, according to tender documents seen by The Straits Times.

With better and smarter air traffic management, passengers can

expect fewer delays and a smoother flying experience, aviation experts said.

A new ATM system will also alleviate congestion and pollution caused by increased air traffic, lower labour costs, and reduce workloads for the roughly 500 air traffic controllers employed here today, the experts added.

In December, CAAS put up a tender seeking consultancy services to help it acquire a new ATM system.

The appointed company will have to develop a set of requirements in the areas of system design, resilience, safety and cyber security based on industry best practices. CAAS will evaluate future contract proposals for the new

ATM system against these requirements.

Singapore's current ATM system has been in use since 2013.

Known as the Long Range Radar and Display System (Lorads) III, it was developed by French aerospace group Thales at a cost of more than \$300 million and can track up to 2,000 aircraft at a time, several times more than the system used before it.

CAAS told ST it is planning to replace Lorads III with a new system before it reaches the end of its life in the late 2020s.

Mr Loo Chee Beng, CAAS' director of aeronautical telecommunications and engineering, said: "The new system will incorporate new capabilities to allow CAAS to manage the growth in air traffic more safely, efficiently and sustainably, and to respond to the evolving operating environment, such as by supporting unmanned

traffic management."

Senior Minister Teo Chee Hean previously said during a dialogue in 2022 that the next generation of air navigation service systems will enable cutting-edge air traffic management concepts to be implemented, improving flight predictability while reducing congestion.

CAAS said it is expanding the Singapore Air Traffic Control Centre in Biggin Hill Road in Changi to accommodate the new ATM system. The centre is one of three air traffic control facilities in Singapore, and it provides approach and area control services to aircraft operating in the Republic's Flight Information Region (FIR).

Under international law, global airspace is divided into FIRs, and countries are responsible for providing flight information and navigation services in the FIRs that they are assigned to by the International Civil Aviation Organisation.

In 2022, CAAS handled about 450,000 aircraft movements in Singapore's assigned FIR.

While this falls short of the 750,000 aircraft movements that CAAS handled in 2019, industry observers predict that passenger traffic in the Asia-Pacific region should make a full recovery in 2024 or 2025, and grow exponentially thereafter.

This growth, coupled with the operationalisation of a three-runway system at Changi Airport in the latter half of the 2020s and the completion of Terminal 5 in the mid-2030s, means Singapore will be dealing with a much higher amount of air traffic in the future, experts said.

Singapore is also investing heavily in unmanned aircraft and air taxis, which means the country will have to manage new kinds of air traffic, adding new challenges, said Associate Professor Sameer Alam, deputy director of Nanyang Technological University's Air Traffic Management Research Institute.

Mr Blair Cowles, the International Air Transport Association's Asia-Pacific regional director for operations, safety and security, said it is important that ATM systems are upgraded, or periodically replaced with newer versions, to ensure they can deliver the safety and ser-

vice levels required by the ever-increasing number and types of airspace users.

Prof Sameer said a new generation of ATM systems will enable Singapore to adopt smart air traffic procedures, which can help reduce carbon emissions and fuel consumption both in the air and on the ground at the airport.

For instance, allowing optimal continuous descent approaches for aircraft landing at Changi Airport, rather than doing it in steps as is the practice now, will help to reduce fuel burn.

Mr Shukor Yusof, founder of aviation consultancy Endau Analytics, said: "Singapore is always keen to maintain its edge in the aviation industry. This latest move to upgrade its systems, and people, to deal with challenges in the next decade and beyond is a step in that direction."

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 An SPH Media Limited publication
 MCI(P)076/10/2022**