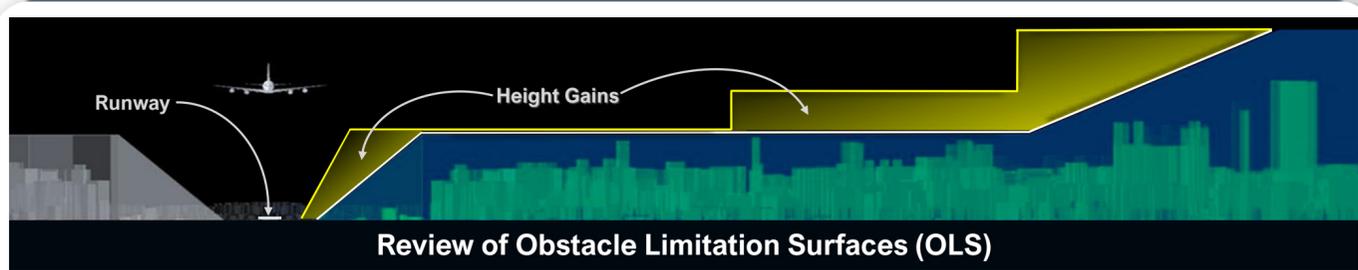


MINISTER'S INNOVATION AWARD



DISTINGUISHED AWARD

REVIEW AND IMPLEMENTATION OF REVISED OBSTACLE LIMITATION SURFACES



PROJECT TEAM



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IMPETUS FOR PROJECT

As stipulated in Annex 14 of the Convention on International Civil Aviation, obstacle limitation surfaces (OLS) define the volume of airspace around aerodromes that must be kept free from obstacles to ensure safe aircraft operations and that cannot be released for other uses. The OLS therefore determines the maximum height of buildings and structures around aerodromes. International Civil Aviation Organisation's (ICAO) OLS Standards and Recommended Practices (SARPs) had not been reviewed since these SARPs were established in the 1950s. In 2013, ICAO called for a significant review of the OLS SARPs, and in 2015, an OLS Task Force was established to undertake this review.

CAAS recognised that ICAO's OLS review presented a valuable opportunity for Singapore as a land-scarce country with a highly built-up urban environment where there are strong competing needs for airspace and land to (1) contribute our thought leadership and expertise, (2) continue to build up this expertise, and (3) reshape international rules to advance Singapore's interests. CAAS' Air Navigation Services Policy (ANSP) Division therefore actively participated in the Task Force from the beginning in 2015 and stepped up to chair the taskforce when approached by the ICAO Secretariat in 2017.

Statement of Need:

International Civil Aviation Organisation's (ICAO) obstacle limitation surfaces (OLS) review presented a valuable opportunity for Singapore as a land-scarce country with a highly built-up urban environment where there is strong competing needs for airspace and land, to (1) contribute our thought leadership and expertise, (2) continue to build up this expertise, and (3) reshape international rules to advance Singapore's interests.

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EXTENT OF INNOVATIVENESS

Through intensive study and a data-driven approach, the OLS Task Force led by CAAS representative Fadzil Md Jakaria moved away from ICAO's previous one-size-fits-all approach to regulating height restrictions around aerodromes to re-imagine how aircraft operations could still be kept safe, while ensuring that the height restrictions were fit-for-purpose.

Fadzil led the OLS Task Force to develop a revised set of international regulations which, based on flight track data, determined the containment surfaces needed to safeguard aircraft operations at the runway. These revised regulations entailed the creation of new classification of surfaces – (1) Obstacle Free Surfaces closer to the runway, and (2) Obstacle Evaluation Surfaces which protect flight procedures, which would work together to ensure that no objects that can affect aviation safety are unaccounted for.

The revised regulatory framework developed by the OLS Task Force also gives States the ability to decide exactly which surfaces to adopt based on the specific operations at each aerodrome. This new regulatory approach allows States to tailor their OLS regulation to their specific needs, enabling the release of more airspace for other development uses.

Innovation Highlights:

First international review of the ICAO OLS Standards and Recommended Practices since establishment in 1950s, adopting an innovative and tailored regulatory approach and taking into account technological advancements in aviation

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IMPACT AND VALUE-CREATION

Arising from the review, the revised OLS SARPs applicable globally require less airspace to be safeguarded to ensure the safety of aircraft operations, thereby freeing up more airspace for non-aviation uses.

For Singapore, the resultant revision of aviation height restrictions has:

- (1) For aviation, provided opportunities for increased operational efficiencies and maximise development opportunities. For example, height restrictions preventing larger aircraft from using loop taxiways during an aircraft departure will be removed, resulting in a reduction in aircraft taxiing time at Changi Airport. The increase in height limits has also benefited Changi Airport Group (CAG) in their development of Terminal 5, by allowing an increase in the terminal building height, which allows CAG to continue delivering quality passenger experience while also meeting other operational needs. Height gains will also be enjoyed by new developments at Changi East, including the Changi East Urban District, and Changi East Industrial Zone.
- (2) Beyond aviation, the revised SARPs present opportunities to allow Singapore to raise building height limits and development intensity across Singapore. CAAS has provided full information on the increase in civil aviation height limits to land use and infrastructure planning agencies, so that they can determine the appropriate building heights and development intensity, taking into account the need to support a sustainable and good quality living environment.

These changes have created immense value and potential for both government agencies to meet national needs, as well as for industry. Internationally, Singapore's chairmanship of the OLS Task Force and positioning as a first mover to implement the revised OLS SARPs has given evidence to Singapore's reputation as a thought leader, consensus builder and key contributor in international civil aviation.

Outcome:

The outcomes of the OLS review increase operational efficiencies and maximises development opportunities for Singapore's air hub, and opens up greater land development potential for the whole of Singapore.

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FEASIBILITY AND SCALABILITY

CAAS has revised our national civil aviation regulations to reflect the revised ICAO rules for OLS regulation on 5 August 2025 (Sg time), to enable the benefits to aviation to be reaped as soon as possible upon the international Effective Date of 4 August 2025 (Montreal time).

To scale the benefits nationally, CAAS has worked closely with agencies such as MINDEF, RSAF, DSTA, MND, URA and HDB to translate and implement the international civil aviation requirements into the national planning context. Infrastructure and planning agencies are reviewing their plans for the future to take into account the aviation height increases, and the infrastructure upgrading and staging required to allow the land intensification on a national level to materialise.

To scale the benefits internationally, Fadzil as Chair of the OLS Task Force ensured that ICAO allowed for an extended Applicability date (5 years from Effective Date, rather than the ICAO proposed duration of 3 years), given the major changes and paradigm shift that would be needed to States' OLS regulatory frameworks. To assist States in their adoption of ICAO's new rules, Fadzil is also conducting international training under ICAO's auspices, starting first with the Asia Pacific region, and next for the Africa and Middle East Region.

Potential of Project:

Revised national height template with height relaxation in different areas of between 10 and 152m of additional airspace becoming available in parts of Singapore.