INTERNATIONAL CIVIL AVIATION ORGANISATION
INSTRUMENT FLIGHT PROCEDURES PANEL (IFPP)

Advantages of the new OLS in Flight Procedure Design

A paper by Beat Zimmermann - November 2 2021

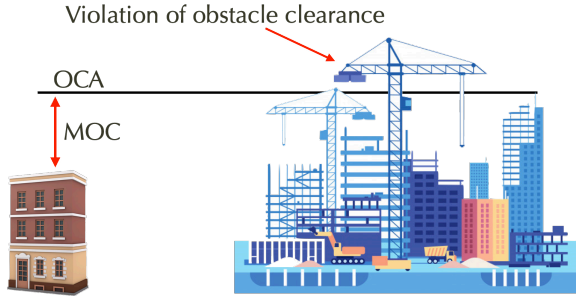
1. The role of Obstacle Safeguarding

The role of the OLS from a Flight Procedure Designer's perspective is very important as a safeguarded perimeter will ensure that designed and published procedures do not become unsafe or unusable by unlimited and uncontrolled obstacle growth.

A safeguarded perimeter with OLS has the advantage that it is permanently checked. Also growing trees will be identified should they eventually grow higher than the OLS and measures can be taken immediately.

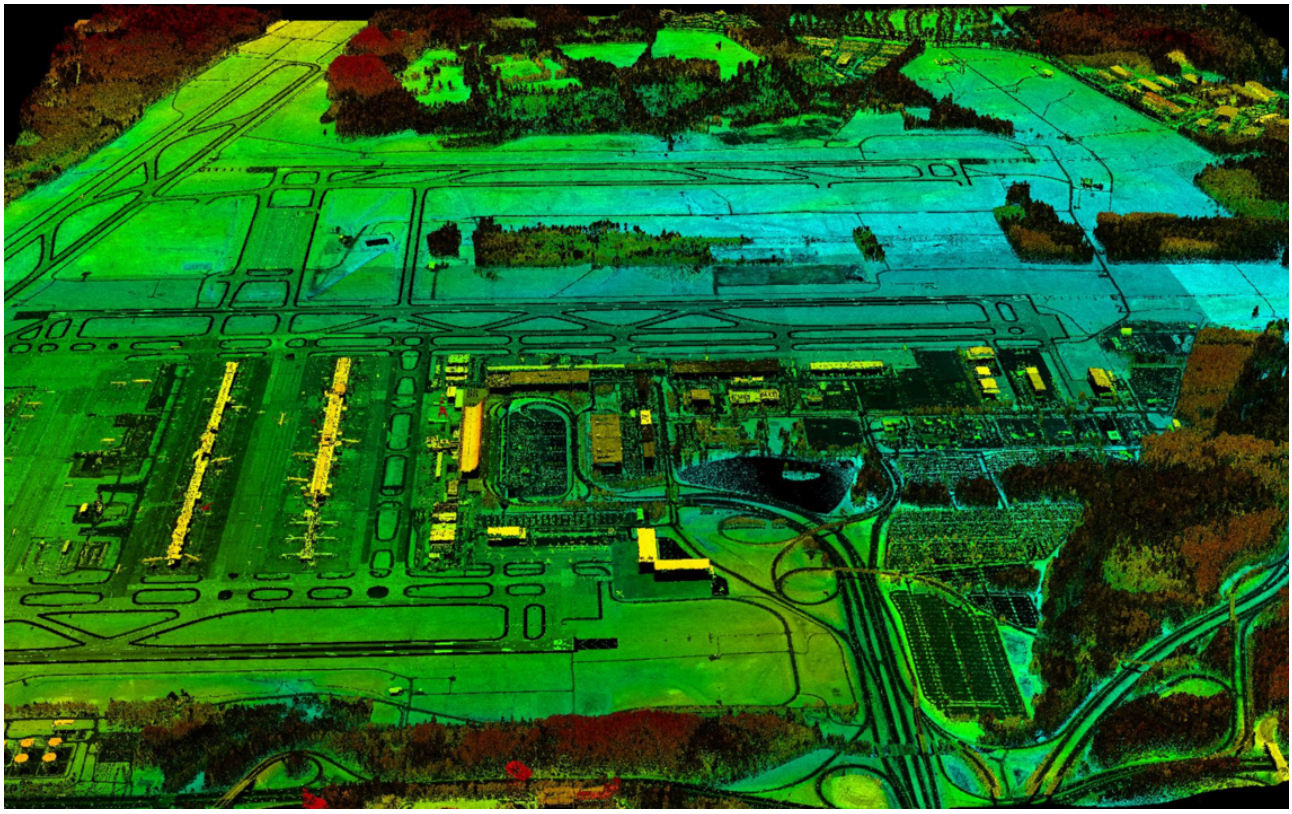
2. Procedure usually go beyond the classical Annex 14 OLS perimeter

Unfortunately not the whole of a flight procedure is normally covered by the perimeter of the OLS. This leads to the issue that outside the Annex 14 OLS safeguarding additional measures have to be taken in order for the procedure not to become unusable by the legal growth of obstacles.

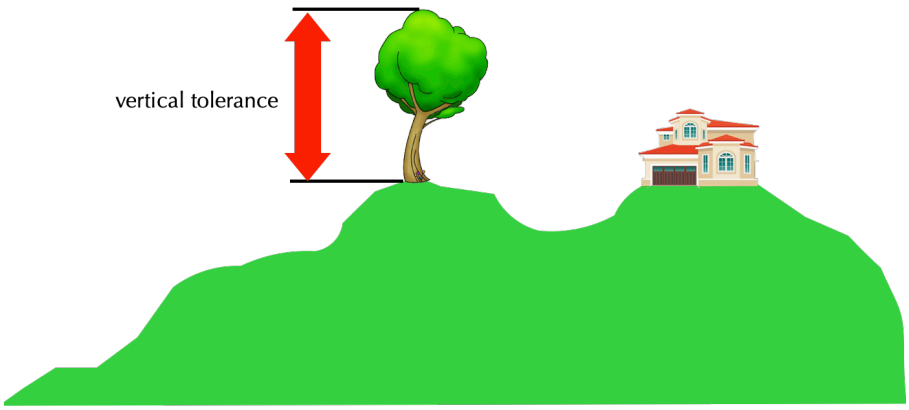


3. How is this addressed?

Flight Procedure Designers are required to factor in the existence of vegetation. Of course the use of photogrammetric data would provide actual tree heights. But the use of such data is normally restricted to the close vicinity of the runway and makes sense only for low visibility operations like Cat. II or III xLS because of cost and amount of data. Further away from the airport or runway often such photogrammetric data are not even available.



If they are available their use can still be questioned as the data are expensive and the size of the data cloud is huge. It is in principle more efficient to use normal terrain databases and factor in a value for vegetation. That same value is often large enough to



account for unreported manmade obstacles that can be legally built but will not show up in any aeronautical obstacle database.

4. The problem with this system

One big problem nowadays is the areas where a potential for wind farms is identified. Because here we no longer speak about the eventual 3-story building or the eventual tree that you can address by adding an extra 30 meters (an arbitrary example!) to the obstacle clearance. Now we are talking of projects looking to erect a series of windmills, each one with a height greater than 200 meters AGL nowadays.
Depending on how rigid the political process for such projects is in a specific country, this can lead to endless discussions or in the worst case, a wind farm could be built without anybody checking the impact on existing IFR procedures as the project is outside the currently safeguarded perimeter and the problem will only be detected at the periodic review of the procedure, which is required every five years.

5. How can the new OLS System help?

The new OFS are a bit less conservative than today's OLS. That will have the advantage that there will be less conflicts between investors who want to construct a building and airport authorities who enforce the non-penetration of such surfaces. Less aeronautical

studies are expected to be required. The flexibility of the ne OES is going to help to protect key IFPs because the whole perimeter of a procedure can be protected by an OES. This is an efficiency gain on several levels.

6. OES advantages

Knowing that my whole approach procedure is now protected by an OES that triggers an aeronautical study for any manmade construction inside the respective OES I have a clearly established process when a building project is submitted. It could mean that the aeronautical study shows an impact on the procedure based on which a decision can be made to either disallow the building or if public interest is rated high enough, how the procedure could eventually be changed and who will shoulder the cost for it.
It also means that the so called continuous maintenance is going to be much easier in the future, something which today is not so easy. In terms of continuous maintenance it simply means that if the procedure is protected by an OES I will not have to fear that an obstacle can be built without anybody's knowledge that could eventually affect the safety of the procedure. Today this is a possible situation.
Furthermore when the periodic review is due after five years, a change in the obstacle situation is highly unlikely, again because only such obstacles will be allowed to construct that do not affect the safety of a published procedure.

7. What is important when the new system is applied?

The above stands and falls with the willingness of State Authorities to rigorously protect the published IFPs with OES from beginning to end and strictly enforce the requirement for an aeronautical study before building permissions are granted.