

**Review of Section 11, Quantitative Mid-Air Collision Risk Analysis, in  
Utility of GAAP Procedures, by Ambidgi, 30 June, 2009**

Section 11 analyses the Mid Air Collision (MAC) risks within and close to GAAP aerodromes. It is concluded in 11.3 that “Baseline societal risks are shown to be intolerable at Moorabbin, Bankstown and Jandakot aerodromes”, and that “Baseline individual risks for flight training instructors at Moorabbin, Bankstown and Jandakot are higher than the apportioned maximum risk criteria.”

It is also concluded (Rec 13 to ..” limit peak traffic movements..” at Bankstown, Jandakot and Moorabbin.

The methodology is primarily to use MAC numbers occurring during the period 2000 – March, 2009; and to ignore previous data including the zero MAC data for the previous decade.

The report notes that three MACs occurred during the period to 2009, and to assume that these numbers are typical. On p141 it is noted that the actual MAC numbers during GAAP hours is 4 for the decade, while p142 states ” For the purposes of establishing a conservative but realistic baseline MAC collision frequency for each GAAP, the last 10 year actual collision rate for Bankstown, Jandakot and Moorabbin has been chosen”

All subsequent analyses follow from this latter statement, yet there is no discussion of the nature of circumstances for each MAC in this report, despite there being some detail in a referenced ATSB report B2003/0114 “Review of Midair Collisions Involving General Aviation Aircraft in Australia between 1961 and 2003. “

To investigate what the Ambidgi analysis has accomplished, let us consider the detail of the Bankstown MACs. At Bankstown, one MAC occurred on final approach, one during practice formation flying in the training area, and one at the inbound reporting point 2RN. These are quite different circumstances and are associated with different types of operations in airspaces used for different purposes. Because of such different circumstances it is not possible to arrive at any similarity of contributing factors. So there are very few MACs, and all occur under different circumstances which have not been analysed by Ambidgi.

This reviewer considers that the core conclusions made (ie societal risks are intolerable) by Ambidgi due to the use of the MAC numbers for Bankstown for the period of 2000 to 2009 are illogical because of:

- the decade chosen: it is not clear why previous decades should be discarded, and
- the lack of consideration of the nature of operations and airspace which were different for each MAC.

Further, Recommendation 13 does not follow as a logical result to the analysis, as many MACs occurring in general aviation in Australia are outside of the circuit area, and the consequence of limiting movements will largely impact only the circuit area.

In summary, the number of events in the 2000 decade is sufficiently low that consideration should be given to analysing events, and/or to utilise several decades and then perhaps using statistics. In the latter case the discussion in the ATSB report is superior. Neither method has been used by Ambidgi. The Ambidgi analysis therefore adds nothing significant to the ATSB report, and is less rigorous. As it stands the analysis appears to be an opinion based on the very low numbers of MACs, and so the results therefore not objective. An analysis made from a different perspective might easily arrive at different conclusions and recommendations. The conclusion to limit traffic movement is based entirely on the simplistic view that less aircraft in the sky will reduce the chance of midair collisions; certainly this may be true in the absence of other information, but in the cases that have been examined by ATSB there is significant extra information not utilised by Ambidgi.

An example is as follows. A possible simple solution to lower the risk of MACs at GAAP Inbound Reporting Points is for traffic to report "approaching" the IRP, not reporting "at" the IRP. This alerts pilots to possible conflict prior to them arriving at the position of densest traffic flows, giving them additional time and information to "see and avoid".

It is recommended here that the entire Ambidgi report be peer-reviewed by independent reviewers.

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