

SHORT (& MEDIUM) TERM MEASURES - EXECUTIVE SUMMARY

MEASURE SET	Airspace operations	
MEASURE TITLE	Rule changes	
MEASURE SUMMARY	This measure includes three proposals concerned with changing rules and practices to realign behaviours and procedures towards optimised system performance.	
MEASURE INVOLVES	<div><div><input checked="" type="checkbox"/> Behavioural Change</div><div><input type="checkbox"/> Infrastructure Change</div></div> <div><div><input checked="" type="checkbox"/> Operational Change</div><div><input checked="" type="checkbox"/> Regulatory Change</div></div> <div><div><input checked="" type="checkbox"/> Technical Change</div><div><input type="checkbox"/> Policy Change</div></div>	
WHAT DOES THIS ADDRESS?		
<p>The principal task of air traffic control is to maintain safe separation distances between aircraft. These separation distances are based on a set of rules, depending on the operation taking place, the classification of airspace, the navigational capability of the aircraft and, for wake vortex separations, the relative size of aircraft in an in-trail sequence. Although these rules have been updated periodically, they sometimes prevent advantage being taken of the advanced capabilities of modern aircraft and other advanced technologies and processes.</p> <p>Currently the principal incentive for airline performance is focused on departures, measured as the time that the aircraft leaves it stand compared to its scheduled time. This incentive can cause perverse behaviours that compound to the detriment of the system as a whole. These behaviours include: (i) excessive buffers in schedules, to ensure on-time arrival in time for on-time or early departure. This can cause bunching in arrivals that leads to delay that leads to increased buffers in a downward spiral of degraded performance; (ii) early push-back from stand, that can again cause bunching and departure delays.</p> <p>Low visibility procedures are enacted when either the runway visible range or cloud ceiling are below minima defined on an airport-by-airport basis. There is currently no differentiation between LVP caused by reduced runway visual range (fog) and low cloud ceiling. In addition, pre-emptive action is taken, usually the day-before, to manage disruption due to the application of LVP because low visibility conditions usually occur in the early morning. This pre-emptive action, such as regulating flow rates, is based on the weather forecast. The accuracy and reliability of low visibility forecasts are low making decisions on pre-emptive actions very difficult.</p>		
WHAT WOULD BE DONE?		
<p>This first proposal would be to modify the baseline ATC rules to optimise airspace and airport capacity and throughput, taking advantage of advanced capabilities, while maintaining safety standards. The second proposal would be to move the main performance incentive from on-time departure to on-time arrival to align the objectives of individual airlines to those of the overall system better than at present, promoting collaboration. Finally, differentiation between reduced runway visual range and cloud base impacts on low visibility operations, at the pre-tactical planning stage, would improve resilience against low visibility.</p>		
WHAT IS THE IMPACT?		
<p>The impacts would be expected to be:</p> <ul style="list-style-type: none">• higher capacity and lower delays• improved resilience.		

MEASURE SET:	Airspace operations	Short Term	<input checked="" type="checkbox"/>
MEASURE TITLE:	Rule changes	Medium Term	<input checked="" type="checkbox"/>

MEASURE SUMMARY

Proposed by:	LACC/AOC (043), NATS (053)		
Proposal: AsOP-RCH-1 AsOP-RCH -2 AsOP-RCH -3	<p>The measure includes three proposals relating to enhanced management of departures. These are:</p> <ul style="list-style-type: none"> reassessment of baseline ATC rules focus on arrival punctuality triggers for the application of low visibility procedures (LVP) <p>With the exception of the application of LVP, these proposals could be implemented in the short-term depending on the extent to which the measures were implemented. For example, the delivery timescales of publishing arrival punctuality figures to incentivise arrival punctuality would be quicker to enact than enforcing particular arrival punctuality targets through mandatory measures. There are technical challenges in the accuracy and reliability of meteorological forecasts of low visibility that might only be surmountable in the medium-term.</p>		
Approach	<p>The approach for each of the measures is as follows:</p> <ul style="list-style-type: none"> reassessment of baseline ATC rules is expected to result in reduced separation minima between aircraft in arrival and departure streams and to enable more flexible operations with respect to wake vortex constraints, thereby increasing runway throughput rates on an airport specific basis focus on arrival punctuality will realign incentives for flights to arrive rather than depart within a more predictable time window, reducing arrivals bunching and smooth arrivals flows, thereby reducing stack holding and optimising the use of terminal airspace applying triggers for the application of LVP differentiating between low visibility (fog and mist) and low cloud ceiling will ensure that the capacity constraints associated with LVP will only be enacted when absolutely necessary thereby increasing resilience. 	<p>Stated Capital Cost: Not stated</p> <p>Capacity (mppa): Not stated</p> <p>Capacity (atm): Not stated</p>	
Benefits	<p>Benefits are likely to be increased runway throughput (capacity) at peak times, along with improved resilience specifically against LVP but also against other disruptions arising from the potential for increased runway rates to facilitate recovery. Changes to ATC minima might result in a capability to accommodate increased numbers of A380 aircraft into the traffic mix while minimising runway throughput penalties associated with A380 wake vortex constraints.</p>		
Issues & Risks	<p>Safety cases will need to be produced for changes to baseline ATC rules and regulatory changes are needed to incentivise arrival punctuality. Regulatory changes are likely to be needed at European and international (ICAO) level for all three options. Significant improvements will be needed in the accuracy and reliability of weather forecasts.</p>		
Mitigations	None needed.		
Dependencies	<p>There are a number of external dependencies:</p> <ul style="list-style-type: none"> regulatory changes in baseline ATC rules, probably at ICAO and European level changes in global industry practice moving from departure to arrival punctuality focus improvements in weather forecasting accuracy and reliability. 		

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ASSESSMENT SUMMARY

Strategic Fit	TBD – depends on long-term options. However, there is potential to mitigate the increase of A380s in the traffic mix through ATC rule changes.
Economy	The potential positive economic impacts are likely associated with increased runway throughput at peak times, enabling scheduling to reflect demand more closely and enabling the use of larger aircraft. Other economic impacts will come from improved resilience against weather disruption and improved recovery after periods of disruption facilitated by increased runway throughput rates.
Surface Transport	There would be little or no impact on surface transport.
Environment	The potential positive environmental impacts would include reduced GHG emissions due to more direct routing and optimal flight profiles and potentially reduced night noise arising from amelioration of the need for night flight dispensations because of increased resilience in LVP.
People	Principal impact on people would likely be through improved arrival predictability for passengers (on time rather than fluctuating between early and late in a wide time window). Other measures would increase runway throughput at peak times and potentially increase noise intensity under the flight paths near to the airport. However, improved resilience might reduce the risk of unscheduled night flights, dispensed to recover from periods of disruption.
Cost	Not yet known
Operational Viability	Barriers to be overcome include: <ul style="list-style-type: none"> • safety cases, and possibly ICAO level changes, for changes to baseline ATC rules • regulatory changes – potentially through changes to what is deemed ‘on time’ through the slot regime - at national, European and ICAO level to refocus and incentivise performance on arrival punctuality • improved accuracy and reliability of weather forecasts to apply triggers for LVP.
Delivery	Delivery is dependent on a mix of regulatory changes at international (ICAO) and European level, changes in global industry practice and improvements in one of the most difficult parts of weather forecasting. There must, therefore, be significant risk associated with all of the proposals.